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ABSTRACT

This paper consists of 13 chapters that describe a study of the effects of training in conflict resolution and cooperative learning in an alternative high school in New York City. Three of the school's four campuses participated, with Campus A receiving conflict resolution training, Campus C receiving cooperative and Campus B receiving training in both. For 2 years, staff training occurred at all three campuses in the form of after-school workshops. The student training in cooperative learning involved five principles: (1) positive interdependence; (2) fact-to-face interactions; (3) individual accountability; (4) interpersonal and small group skills; and (5) processing (analysis of group functioning with the goal of improvement). The conflict resolution training taught active listening, "I" messages, reframing the issues in conflict, criticizing ideas and not people, differentiating between underlying needs versus positions, distinguishing between negotiable and non-negotiable conflict situations, developing "win-win" solutions, and destructive and constructive negotiation styles. Data were collected with questionnaires to 350 students before and after training, performance ratings of students, teacher behavior evaluations, and supplemental interviews. The results indicate positive effects on the students. As students improved in managing conflicts they experienced increased social support, improved relations, higher self-esteem, increases in personal control, and higher academic performance. Included are 107 tables, 14 figures, and references and appendixes at the end of each chapter. (JB)

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THE EFFECTS OF TRAINING IN COOPERATIVE LEARNING AND CONFLICT RESOLUTION IN AN ALTERNATIVE HIGH SCHOOL

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Curtis Dolezal served as a research assistant throughout the project and contributed to all phases of our study. His dissertation, "The Relationship Between Conflict Resolution Training/Cooperative Learning and Self-Esteem," is an important product of our study.

The authors are, in order of first appearance in the report:

Morton Deutsch was principal investigator and director of this study.

Vernay Mitchell was in charge of field observations and, after the first year, contributed uniquely to the project through her ethnographic skills and considerable experience working in schools.

Quanwu Zhang was a research assistant throughout the project, His statistical expertise has been of enormous advantage to our research; it has enabled a more appropriate and sophisticated test of the theoretical model underlying our project than would otherwise have been possible. His dissertation, summarized in his chapter, provides the central statistical analyses of our study.

Nidhi Khattri was a research assistant throughout most of the study. Her chapter on the social validity of our research goes considerably beyond most studies of consumer satisfaction.

Lela Tepavac was a research assistant throughout the project. In addition to her chapter, she has prepared several papers as well as her dissertation based on the study which were valuable contributions. Her extensive knowledge of the social science literature related to work and her analyses of the employers' rating scale and of the teachers' behavior rating scale considerably enriched our study.

Eben Weitzman was a research assistant throughout the project. In addition to his chapter, he has contributed uniquely to our research through his special expertise with computers and data management.

Robin Lynch was also a research assistant throughout most of the project. Her interest in the determinants of academic achievement have been stimulated by her chapter and she will be making further contributions in this area.

Finally, but not least, we wish to acknowledge the enormous help of Jon Snyder, our first administrative secretary, and of Steve Turley, our administrative secretary throughout most of the project. Both saved the project from being drowned in the masses of paper work connected with billing and preparing reports. Whatever orderliness and felicity this current report has is due in large measure to Steve Turley.

Abstract

In this report we describe a field study in which we introduced training in cooperative learning and/or constructive conflict resolution in three campuses of an alternative high school in New York City. In Campus A, training was in constructive conflict resolution; in Campus C, training was in cooperative learning; in Campus B, both types of training took place. To document the training and to assess its effects, we conducted periodic questionnaire surveys of students and teachers, made systematic observations, and interviewed students and staff.

Based upon prior theoretical work and research, we developed a theoretical model which led us to expect that both types of training would lead to an improvement in the social skills that would facilitate constructive conflict resolution and effective working together with others. We further assumed that training in constructive conflict resolution would particularly enhance the former set of skills while training in cooperative learning would particularly improve the latter type of skills. Next, we posited that an improvement in managing conflict and working together with others would have a positive impact on the students' relations with others which would be reflected in their receiving greater social support from others and being less victimized by others. The increased positiveness of the student's social environment toward him or her would, in turn, lead to greater self-esteem as well as more frequent positive mental states (e.g., "cheerfulness," "life is interesting") and less frequent negative mental states (e.g., "upset," "tense," "depressed"). As the student's self-esteem increased and the social environment became more positive in its responsiveness, we expected that the student would feel a greater sense of control over what happened to him or her (internal locus of control). Since prior research has demonstrated a strong relationship between academic achievement and locus of control, we also assumed that an increased sense of control over one's fate would lead to greater academic achievement.

Difficulties in implementing the training and in conducting the research as we had originally planned led us to be somewhat pessimistic about the possibility of drawing reasonably clear conclusions from our study. These difficulties included curtailment of funds which reduced the

amount of training of the teachers, the high dropout and transfer rates of students, their high rate of absenteeism and tardiness, and the inability to find a suitable control campus to participate in our study. However, despite the "noise" created by the problems we experienced, a consistent pattern of findings emerged from the statistical analyses of our quantitative data. Our qualitative data are in accord with these findings.

The results of our study are congruent with our theoretical model and with prior theorizing and research on cooperative learning and conflict resolution. The LISREL analyses of the data provide the clearest support of our model. From these analyses, it is evident that as students improve in managing their conflicts, they experience increased social support and less victimization from others. These indicators of a more personally favorable social environment are causally related to improvement in the various measures of the students' psychological traits and states (self-esteem, locus of control, positive and negative mental states) contained in the model. Beyond the expected relationship between locus of control and academic achievement, it appears that academic achievement improves with gains in students' positive mental states.

The evidence regarding the effects of our training on the skills related to effective working in groups is less conclusive: we had assumed that the cooperative learning training would be particularly relevant to the acquisition of such skills. However, our qualitative data indicate that this social skills component was not employed much by the teachers in their implementation of cooperative learning in their classes. This was particularly true at Campus C. In addition, our measure of this component of cooperative learning training was not reliable.

The data with regard to vocational readiness indicate that its measures were positively correlated with the psychological and mental health variables for which a favorable change due to training was detected in the LISREL analyses. Thus, more favorable posttest work readiness scores were associated with greater social support, higher self-esteem, more internal locus of control, less anxiety and depression, and more social well-being as well as with more systematic and less avoidant problem-solving. These results suggest that our theoretical model of the effects of training in cooperative learning and conflict resolution, describe earlier, is applicable to vocational readiness.

Several measures of vocational readiness were related to the assessment of work performance of students by employers and to ratings of students by teachers. These data suggest that employers preferred compliant, non-ambitious students for their relatively routine, non-skilled work situations, whereas the teachers preferred students who were more autonomous, inner-directed, and achievement oriented. However, both the teachers and employers had less favorable evaluations of students who were avoidant or ineffective in handling problems and conflicts.

Our data also indicate that the "consumer satisfaction" with our interventions was favorable. The teachers were moderately positive in assessing the effects of the interventions on the students even though a majority did not yet feel skilled in implementing the training in their classrooms. The students, in interviews as well as on questionnaires, reported they used the training, found it useful to them, and had improved in their interpersonal skills as well as in managing their conflicts. The objective measure, as well as the subjective measure, of student exposure to the training was significantly and positively related to various measures of student self-reported improvement at the different campuses. In interviews with the principal and the coordinators at the three campuses, they report general positive changes at AHS which improved communication and interaction among teachers and students and between them as well.

It is impossible from our study to draw any reliable conclusions about the relative effects of cooperative learning training and conflict resolution training. The three campuses differed not only in the training they received but also in many other ways. Nevertheless, collectively we have the subjective impression that the combined training was most effective.

We conclude by stating that our study was conducted under conditions which were considerably more difficult than those under which most prior studies were conducted. The students in our study were more "at-risk," facing more difficult life circumstances, and were also older; the teachers were working in more adverse conditions, more decrepit buildings, and in a more demoralized educational system than in most previous studies. The fact that our training produced positive results under these difficult conditions and that our results are consistent with prior theorizing and research suggests that cooperative learning and conflict resolution training are valuable in a wide range of educational settings.

Chapter I: Introduction[*]

Introduction

Recent discussions of the inadequacies and failures of American education have been primarily concerned with the deficiencies in student academic achievement. A major concern has been that many of our students will not have the cognitive skills and academic knowledge to be productive when they enter the world of work. Dire consequences for the American standard of living and for our position in the world are expected to occur if these deficiencies go uncorrected.

In the public discussion of the problems in American education little emphasis has been placed upon the importance of the development of the social skills of our students -- particularly their skills in effective cooperation and in constructive conflict management. Yet there is much evidence to suggest that the graduates of our schools also have inadequate social skills -- consider such symptoms as the state of inter-ethnic relations in the United States, family disintegration, spouse and child abuse, violence, decreased sense of community and civility, drug abuse, and work problems. There is ample reason to suggest that the social skills of working together effectively and of resolving conflicts constructively are crucial to building and maintaining stable marriages, families, communities, friendships, work careers, harmonious intergroup relations, economic productivity, and a peaceful world.

Beyond the importance of social skills to effective functioning as an adult, there is also reason to think that these skills may be important to effective functioning as a student and to learning. As Resnick (1987) has pointed out, one reason students may have difficulty in learning and retaining in-school material is because it differs so much from out-of-school experience: the former emphasizes individual cognition whereas the latter stresses shared cognition. Resnick (1987, p. 19) draws the logical conclusion that academic achievement "will require a civic consciousness that goes beyond the individualist one of current classroom learning models and draws on models of shared intellectual functioning such as we see in our best work environments." Thus, a school that is successful in promoting academic achievement is apt to include features that are characteristic of out-of-school cognitive performances such as socially shared intellectual work. Such work would be organized around joint accomplishment of tasks so that the elements of academic knowledge and skills take on meaning in the context of the student's life.

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[*] This chapter was prepared by Morton Deutsch.

Our Project's Initiation

The project which is reported here bears upon the issue of the importance of social skills in education and to education. However, the project was not initiated with this issue as its focus. Its origins were in the project director's interests in cooperative learning and conflict resolution. His theoretical work and basic research on cooperation-competition and conflict resolution (Deutsch, 1949a,b; 1973; 1985) had done much to provide a theoretical foundation for practical work in these two areas, but he felt that the research evaluating the effects of the practical work was deficient. Prior to the initiation of this project, most studies of the effects of cooperative learning were brief studies in experimental classrooms in which the cooperative learning lasted for three weeks or less; there were very few studies of the effects of training in conflict resolution and almost all of them were confined to collecting data about the teachers' and/or students' satisfaction with the training. There were few or no studies in difficult, inner-city settings where tired teachers were trained after working a hard day in an impoverished school environment with students who were burdened by debilitating family and neighborhood conditions.

Our project was shaped not only by our interest in studying the effects of training in cooperative learning and conflict resolution in difficult circumstances, but also by the interests of the funding agencies who provided financial support for our study. The W. T. Grant Foundation is particularly concerned with the mental health of inner-city urban youth and the National Center for Research on Vocational Education is concerned with knowing more about the factors affecting the vocational and career plans of students.

The school selected for the implementation of our project, as well as many of the measures we employed in our research, in part reflect the interests of our funding agencies. The selection was also, in part, opportunistic. Our training director, Ellen Raider, and one of her staff, Denise Davis-Pack, had done some conflict resolution training of a small group of students in one of the campuses of this school several years earlier. During the training, Ellen had gotten to know the principal and assistant principal quite well. When they heard of our project, they were quite interested in having it conducted at their school. The school also seemed to fit our requirements: it was an inner-city alternative high school concerned with career education whose students had previously dropped out of high school and were now trying again. The student population was mainly African American and Hispanic in ethnic background. (See Chapter IV for a more detailed description of Alternative High School.)

From prior experience we knew that it would be difficult to obtain from school authorities the cooperation we needed to conduct our project, thus we were delighted by the interest and willingness of the key school administrators to cooperate with us as well as by their willingness to help us obtain approval from the various layers of higher school authorities. (These higher authorities also had to authorize and provide funds to cover the costs of the payment for teachers for the time they spent in training after school hours.)

However, we decided that we would not proceed with our study unless we could be assured of the cooperation of most of the teachers in being trained and in employing the training in their classrooms. Additionally, we wanted assurance that they would cooperate with the research, allowing classroom observations, questionnaires, and interviews to be administered to their students, and would answer research questions themselves. Parenthetically, we note that our prior experience had been that school authorities and teachers were often quite receptive to training but unwilling to cooperate in the kind of systematic research entailed in our study.

Alternative High School (the pseudonym of the school we studied) consists of four campuses, located in different parts of the city. We asked for and obtained permission to meet with the teachers at each of the four campuses to describe our training and research project to them.

We (two members of our staff) told them that we wanted very much to work with them but would only do so if at least a majority of the teachers were willing to receive our training and if they would also cooperate with our research to evaluate the effects of the training. We were informed by the principal that the overwhelming majority of the teachers at three of the campuses agreed to participate in the training and cooperate with our research. It was reported that the fourth campus was going through such administrative turmoil that it did not wish to participate in the study at this time.

Research Design

We decided to go ahead and conduct our project at the three campuses. Campus A, was selected to receive training in conflict resolution only; Campus C to obtain training only in cooperative learning; and Campus B to have training in both.

As we shall explain in more detail in Chapter II, we believe there is inevitably much overlap in "cooperative learning" and "conflict resolution." Many of the same social skills and social attitudes are required in effective cooperation and in constructive conflict resolution -- e. g., perspective-taking, active listening, communicating clearly, systematic problem-solving, concern for the other. We anticipated that training in each would have similar and positive effects, directly and indirectly, on our main dependent variables -- social support, victimization, self-esteem, locus of control, positive mental states, negative mental states, academic performance, and vocational performance. However, we thought that there might be a synergistic relationship between "cooperative learning" and "conflict resolution" training so that the combination might have stronger effects than either by itself: cooperation is facilitated and deepened by constructive resolution of the inevitable conflicts which emerge during cooperative interaction; conflict resolution is apt to be more constructive in a cooperative context. It was to investigate this possibility that Campus B received training in both while Campuses A and C had training in only "conflict resolution" and "cooperative learning," respectively.

We realized from the start that our research could not in any sense be considered a true experiment with randomized assignment of teachers and students to the different trainings. Our "controls" would have to be through the internal analyses involving causal modeling, through structural equations, rather than through direct comparisons among campuses or with a "control" group. Nevertheless, we had hoped also to do research on the fourth campus, where no training would take place, to provide another basis for comparison. Unfortunately, we were not able to obtain their cooperation. Nor were we able to find another school roughly similar to the three campuses that was also willing to cooperate in our research by serving as an "untrained" comparison.

During the course of our research we collected large amounts of quantitative and qualitative data and have subjected them to sophisticated statistical analyses (see Chapter III for a description of the types of data collected). It is well for the reader to be aware that inferences about causal effects or non-effects are inevitably complex rather than simple and straightforward in a study of the sort being reported here. No single strand of data nor any single statistical analysis can, by itself, provide a solid foundation for causal inference. It is the *pattern* of results, whether they fit together or not in a consistent way, which enables conclusions to be drawn with a reasonable degree of confidence.

Before the introduction of our training in June of 1988 (i. e., at the end of the 1987-88 school year), data collection was initiated by administering questionnaires to those 350 of the approximately 540 enrolled students who were in attendance. These questionnaires provide various measures of the student population at AHS who were exposed to AHS but not yet exposed to our training. (For a description of the measures see Chapter III.) In September of 1988 (at the beginning of the 1988-89 school year), 291 entering students also filled out a questionnaire. This was similar to the one filled out by the pre-existing students except that the entering students answered the questions relating specifically to school climate, school procedures, etc. in terms of their prior school rather than AHS. At the time of filling out their questionnaires, these students had also not been exposed to our training. Other new students entered AHS in May, 1989, September, 1989, and January, 1990, and were administered questionnaires shortly after they entered.

All of the student questionnaires filled out as indicated in the preceding paragraph could be described as "pre" questionnaires -- i. e., they were filled out by students before they were exposed to the training. "Post" questionnaires, filled out by the students who were in school after training had been initiated, were filled out by 190 students in May, 1989 (toward the end of the first year of training), by 64 students in January, 1990, and by 108 students in May, 1990 (toward the end of the second year of training). An additional 96 students in May, 1990, filled out a second "post" questionnaire, having filled out their first "post" questionnaire in May, 1989, or January, 1990. The significant decrease in numbers from the "pre" to "post" questionnaires primarily reflects two important features of the student population at AHS: the large number of students who drop out from AHS (only about 40% of entering students graduate); and the decrease in the attendance rate from the beginning to the end of the academic year (only about 60% of students attend classes regularly). On the average, students who graduate from AHS have only been there for 1 1/2 years.

It should be noted that the "dosage" of training that students received could vary considerably as a function of such factors as: whether or not their teachers had received training; how frequently their teachers implemented the training they had received in the classroom; how expert the teacher was in implementing the training; how regularly the student attended classes; and, how long he or she was in attendance at AHS after training had been initiated. Where possible and appropriate, we have incorporated into our statistical analyses a measure of the students' exposure to training. However, it should also be noted that we have no measure of "indirect exposure" and it is reasonable to assume that many students who had little direct exposure to the training were being affected by the large numbers of students and teachers who were directly influenced by their training.

Training

Training of the administrators, coordinators, teachers, and paraprofessionals was initiated in August, 1988. Eleven people (9 teachers, 1 paraprofessional, and the coordinator) from Campus A were given 3 days of training in conflict resolution; one person was unable to be present. Twelve people (10 teachers, 1 paraprofessional, and the coordinator) from Campus C were given 2 days of training in cooperative learning; three teachers were unable to be present. Ten people (eight teachers, 1 paraprofessional, and the coordinator) from Campus B were given the same training in conflict resolution as those from Campus A as well as the same training in cooperative learning received by those from Campus C; two teachers and 2 paraprofessionals were not present. Training was conducted at Campus A, which is also the location of the offices of the central administration of AHS. The principal and assistant principal of AHS attended most of the training.

During the 1988-89 and 1989-90 school years, training of the teachers continued at each of the three campuses. At Campus A the training focus was conflict resolution for both years; at Campus C for both years it was cooperative learning; at Campus B the focus was on conflict resolution in the first year and cooperative learning and conflict resolution in the second year. Training usually took the form of two hours of after-school training workshops about twice a month with the trainer on campus one day per week for individual staff development. A more detailed description of the training at each campus is presented in Chapter V.

It should be noted that the training in cooperative learning at Campus C got off to a slow start because, much to our dismay, the State Teachers Union insisted that we use one of their union trainers to do the training in cooperative learning. The trainer they produced decided not to do the training because of the long commute to Campus C for her and they eventually allowed us to use our trainer. She started to do the training in January, 1989. During the course of the 1989-90 school year, our trainer underwent major surgery and had to cancel training for about two months.

The training model used for cooperative learning is the model developed by Johnson, Johnson, and Holubec (1986). The model is more fully described in the next chapter. Our trainers were trained by the Johnsons. As will become apparent in Chapter V, the model was used flexibly so as to be responsive to the particularities of each campus.

The model for training in conflict resolution drew upon several sources: (1) a theoretical model developed by Deutsch (1991) which articulates a number of basic principles of training in conflict resolution; (2) a training model originated by Raider (1987) which has been widely used in training managers and teachers in conflict resolution; (3) a curriculum on violence prevention developed by Prothrow-Stith (1987); and (4) curricula for conflict resolution and mediation developed by Sadalla, Henriquez, and Holmberg (1987) of the San Francisco Community Board for use in the schools. It should be emphasized that conflict resolution training was implemented very flexibly depending upon the context in which it was to be employed -- orientation sessions for new students, Family Groups,[1] vocational classes, etc.

When the project was initiated we anticipated that training of the teachers would take place over a three year period and that our measurements relating to the effects of the training on students would also extend over a three year period. Unfortunately, a reduction in our funding forced us to curtail our training and stop our data collection at the end of two years. However, because of the urgent request of the teachers at AHS, we felt obligated to continue training in the third year and did so for several additional months. The trainers and project coordinators have indicated in interviews that, during this third year, the teachers began to feel skilled and at ease in employing their newly acquired skills in cooperative learning and/or conflict resolution.

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[1] Family Group at Campuses B and C and "Strat" at Campus A function somewhat as a cross between homeroom and counseling groups. See Chapters II and IV.

Description of Alternative High School

Alternative High School, which was founded in 1971, is a network of four campuses with a central office located in its downtown campus. Each campus has approximately 180 students and 14 teachers, including a site coordinator.

Although the academic program at AHS is focused toward student completion of New York State diploma requirements, work opportunities are part of an integrated curricula provided to each student. A thematic approach is occasionally utilized at AHS, with the site concentrating on a central issue during an entire ten-week grading cycle. The thematic approach links the academic content to the students' lives.

The management philosophy of AHS is expressed in its emphasis on teacher and student empowerment. Responsibility for operation of each AHS campus is collectively assumed by its coordinator, teachers, and staff who meet to review, discuss, and decide on issues germane to their particular campus. Student empowerment is expressed through CORE, which is comprised of representative student members selected by the students from each advisory group. The responsibilities of the CORE group include student disciplinary issues, admission interviews, and liaison with the teachers and staff regarding curricular concerns.

The students who attend AHS are usually "dropouts" or "truants" from traditional high schools who are referred by high school counselors, court systems, and by their families. The students are predominantly Hispanic and African American, and are mostly from economically disadvantaged backgrounds. It is estimated that about one third of the women students are "teen mothers." In a random sampling of students, teachers indicated that 30 percent of the sampled students had been referred for counseling services. Current AHS records indicate that about 40 percent of the entering students are graduated, 30 percent drop out, 15 percent transfer to other schools or programs, and 12 percent are truant or not accounted for. Less than 60 percent of the students attend classes on a regular basis.

The Organization Of This Report

In the following chapter we shall describe more fully the rationale underlying our training interventions of cooperative learning and conflict resolution as well as indicate what our plans were for the training. In Chapter III, our research methodology will be discussed. In the following chapter, a fuller description of Alternative High School will be presented. The fifth chapter will characterize the actual implementation of the interventions; these were not completely as planned. In Chapter VI, some of the qualitative descriptions and case studies which resulted from our ethnographic study of AHS will be presented to provide a context for viewing the quantitative data and statistical analyses.

Chapters VII through XI report the results of the interventions as reflected in our quantitative data. In Chapter VII, we shall present the results of the Lisrel analyses of our data. These analyses provide a test of the causal model underlying our project and enable us to draw some overall conclusions about the effects of our interventions. In Chapter VIII, we present an analysis of material related to how the teachers and students evaluated the training. The following chapter focuses on matters more specifically related to the vocational information, attitudes, and performance of the students. Chapter X is concerned with factors influencing school climate, while Chapter XI examines other data of interest related to academic achievement. Chapter XII provides an integrative summary of the results.

Finally, in Chapter XIII we summarize our conclusions and draw the implications of our study for education.

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Chapter II: The Training Rationale and Initial Training Plans[*]

By now there have been extensive theoretical analyses and experimental investigations in the areas with which this project is concerned: cooperative learning and conflict resolution. The principal investigator of this project has done pioneering work in these areas and much of the following discussion of the rationale for the training is based on his writings (Deutsch, 1949a, 1949b, 1973, 1985). David Johnson (Johnson and Johnson, 1989), a former student of Deutsch, has further developed and systematized work in these areas.

The discussion is divided into two parts: the first part presents a theoretical framework for the work in cooperative learning and the second a framework for the work in conflict resolution. Because the writings of Deutsch and of the Johnsons are widely known and widely cited, they will be presented in brief, summary form. The theoretical ideas on cooperation provide the foundation for the subsequent work on conflict resolution since, according to Deutsch's theory, the process of constructive conflict resolution has the essential characteristics of an effective cooperative problem-solving process.

The Conceptual Framework For Our Training

Cooperation

Deutsch's theory of cooperation and competition (Deutsch 1949a, 1949b, 1973, 1985) is a general theory that is applicable in many different social contexts -- factories, homes, and communities as well as schools. To oversimplify somewhat, it has two basic ideas: one relates to the type of interdependence among goals of the people involved in a given situation and the other to the types of actions by the people involved. It identifies two basic types of goal interdependence: *positive interdependence*, where the goals are positively linked; and *negative interdependence*, where the goals are negatively linked. To put it colloquially, when you are positively linked with another you "sink or swim together;" when you are negatively linked, if the other "sinks" you "swim" and if the other "swims" you "sink."

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[*] This chapter was prepared by Morton Deutsch.

Detusch's theory also characterizes two basic types of actions by an individual: *effective actions*, which improve the person's chances of obtaining his goal; and *bungling actions*, which worsen the person's chances of obtaining his goal. It then combines types of interdependence and types of action to posit how they jointly will affect three basic social psychological processes: "substitutability" (how one person's actions can satisfy another person's intentions), "cathexis" (or "attitudes"), and "inducibility" (or "influence").

Thus, the theory predicts that, when you are in a positively interdependent relationship with someone who bungles, his bungling will not be a substitute for effective actions you had intended and the bungling will be cathected negatively. In fact, when your net-playing tennis partner in a doubles game allows an easy shot to get past him, you will have to extend yourself to prevent yourself from being harmed by the error. On the other hand, if your relationship is one of negative interdependence and the other bungles (as when your tennis opponent double-faults), your opponent's bungle will substitute for an effective action on your part and will be cathected positively or valued. The reverse is true for effective actions: an opponent's effective actions are not substitutable for yours and are negatively cathected or valued; a teammate can induce you to help him make an effective action, but you are likely to try to prevent or obstruct a bungling action by your teammate. In contrast, you will be willing to help an opponent bungle, but your opponent is not likely to induce you to help him make an effective action (which, in effect, would harm your chances of obtaining your goal).

The theory then goes on to make further predictions about different aspects of intrapersonal, interpersonal, intragroup, and intergroup processes from the predictions about "substitutability," "cathexis," and "inducibility." The predictions have been supported by Deutsch's research as well as by the studies of many other investigators. David and Roger

Johnson in their 1989 book, Cooperation and Competition: Theory and Research, provide a comprehensive review of the relevant research.

The theory and research indicate that the differences between the processes involved in cooperation and competition can be summarized as follows:

1. *Communication.* A cooperative process is characterized by open and honest communication of relevant information between the participants. Each is interested in informing, and being informed by, the other. In contrast, a competitive process is characterized by either lack of communication or misleading communication. It also gives rise to espionage or other techniques of obtaining information about the other that the other is unwilling to communicate. In addition to obtaining such information, each part is interested in providing discouraging or misleading information to the other.

2. *Perception.* A cooperative process tends to increase sensitivity to similarities and common interests while minimizing the salience of differences. It stimulates a convergence and conformity of beliefs and values. A competitive process tends to increase sensitivity to differences and threats while minimizing the awareness of similarities. It stimulates the sense of complete oppositeness: "You are bad; I am good." It seems likely that competition produces a stronger bias toward misperceiving the other's neutral or conciliatory actions as malevolently motivated than the bias induced by cooperation to see the other's actions as benevolently intended.

3. *Attitudes toward one another.* A cooperative process leads to a trusting, friendly attitude, and it increases the willingness to respond helpfully to the other's needs and requests. In contrast, a competitive process leads to a suspicious, hostile attitude, and it increases the readiness to exploit the other's needs and respond negatively to the other's requests.

4. *Task orientation.* A cooperative process leads to the defining of conflicting interests as a mutual problem to be solved by collaborative effort. It facilitates the recognition of the legitimacy of each other's interests and of the necessity of searching for a solution that is responsive to the needs of all. It tends to limit rather than expand the scope of conflicting interests. Attempts to

influence the other tend to be confined to processes of persuasion. The enhancement of mutual power and resources becomes an objective.

In contrast, a competitive process stimulates the view that the solution of a conflict can only be one that is imposed by one side on the other. The enhancement of one's own power and the minimization of the legitimacy of the other side's interests in the situation become objectives. A competitive process fosters the expansion of the scope of the issues in conflict so that the conflict becomes a matter of general principle and is no longer confined to a particular issue at a given time and place. The escalation of the conflict intensifies the parties' emotional involvement in it; these factors, in turn, may make a limited defeat less acceptable or more humiliating than mutual disaster might be. Duplication of effort, so that the competitors become mirror-images of one another, is more likely than division of effort. Coercive processes tend to be employed in the attempt to influence the other.

Johnson and Johnson (1983) summarize other findings of the research on cooperative, competitive, and individualistic goal structures:

1. *Helping*. There is more frequent cross-ethnic and cross-handicap helping and tutoring, and generally more facilitative and encouraging interaction, among students in cooperative than in competitive or individualistic learning situations.

2. *Peer support and acceptance.* Similarly, cooperative experiences result in stronger beliefs that one is personally liked, supported, and accepted by other students and that the others are caring and helpful.

3. *Perspective-taking*. The ability to understand how a situation appears to an other and how the other is reacting cognitively and emotionally can be contrasted with a more self-centered orientation where one's own viewpoint so dominates one's perceptions that it is difficult to take the perspective of others. Cooperative experiences have been found to promote greater cognitive and affective perspective-taking than competitive or individualistic ones.

4. *Self-esteem.* Cooperative, as contrasted with competitive or individualistic, experiences promote higher levels of self-esteem. Cooperativeness is positively related to numerous indices of

psychological health, whereas competitiveness is positively related to only a few; individualistic attitudes are related to numerous indices of pathology, such as social maladjustment, alienation, and self-rejection.

5. *Expectations toward future interaction.* Cooperative, as contrasted to competitive or individualistic, experiences promote greater feelings that past interactions with others have been rewarding and enjoyable and that future interactions will be too.

The theory and subsequent research on cooperation-competition strongly suggest that there would be important benefits for students (and undoubtedly for adults, too) if schools and classrooms were changed so that students were *for* rather than *against* one another, so that they clearly recognized that they gained rather than lost when another student learns and performs well. Deutsch's early experiment (1949b) with M.I.T. undergraduates, contrasting cooperative and competitive grading procedures, supported this idea as have many other investigations of cooperative learning since then (see Johnson and Johnson [1989] for a comprehensive review).

Thus, our rationale for introducing cooperative learning into Alternative High School was well-grounded in pre-existing theory and research. Admittedly, the pre-existing research was mainly under circumstances and in settings which were more favorable to the success of cooperative learning than was true for our project. Nevertheless, we thought it reasonable to expect that there would be significant positive effects on students if we were able to get a sufficient number of teachers well-trained in employing cooperative learning and, also, if a sufficient number of students had substantial exposure to cooperative learning in their classes.

We anticipated that involvement in cooperative learning would directly enhance both the students' social skills (e. g., such skills as communication, perspective-taking, social problem-solving, sharing, helping, and being helped) and the immediate social support that they would receive from other students in their cooperative learning groups. These, in turn, would lead to more positive responses from their social environment (i. e., more social support from friends, family, teachers, other students) and less victimization by others. The increased social support and decreased victimization would enhance the students' self-esteem and positive mental states and also decrease their negative mental states such as anxiety and depression. Further, there was reason to believe that an increase in the self-esteem of students would be accompanied by an enhanced sense of their control over their fate (internal locus of control). Prior research would also suggest that academic achievement would improve as a consequence of their enhanced sense of personal control and also because of the greater learning in cooperatively structured -- as compared with more traditionally structured -- classrooms. We also expected, as a result of the improvement in the students' social skills and psychological states, that they would perform more effectively in their work situations.

Conflict Resolution

What determines whether a conflict will take a constructive or destructive course? This question has been the focus of much theorizing and research by Deutsch and his students (see Deutsch, 1973). Two key ideas have emerged from this work. The first is that a constructive process of conflict resolution is similar to an effective cooperative problem-solving process, while a destructive process is similar to a competitive process. This idea recognizes the intimate link between the processes of cooperation and competition and the processes of conflict resolution. In so doing, it enables us to draw upon the prior work on cooperation and competition to characterize the central features of constructive and destructive *processes* of conflict resolution; this represents a major advance beyond the characterization of *outcomes* as constructive or destructive. This is not only important in itself but it also opens up a new possibility. At both the theoretical and practical levels, the characterization of constructive and destructive processes of conflict creates a very significant opportunity to develop insight into the conditions which initiate or stimulate the development of cooperative-constructive versus competitive-destructive processes of conflict. Many of the research studies of Deutsch and his students have been addressed to developing this insight.

All of these studies seem explainable by the second key idea, which has been labeled "Deutsch's crude law of social relations": the characteristic processes and effects elicited by a given type of social relationship (cooperative or competitive) also tend to elicit that type of social relationship. Thus, cooperation induces and is induced by: a perceived similarity in beliefs and attitudes; a readiness to be helpful; openness in communication; trusting and friendly attitudes; sensitivity to common interests and de-emphasis of opposed interests; an orientation toward enhancing mutual power rather than power differences; and so on. Similarly, competition induces and is induced by: the use of tactics of coercion, threat, or deception; attempts to enhance the power differences between oneself and the other; poor communication; minimization of the awareness of similarities in values and increased sensitivity to opposed interests; suspicious and hostile attitudes; the importance, rigidity, and size of the issues in conflict; and so on.

In other words, if one has systematic knowledge of the effects of cooperative and competitive processes, one will have systematic knowledge of the conditions which typically give rise to such processes and, by extension, to the conditions which affect whether a conflict will take a constructive or destructive course. Deutsch's theory of cooperation and competition is a theory of the *effects* of cooperative and competitive processes. Hence, from the crude law of social relations stated earlier, it follows that this theory provides insight into the conditions which give rise to constructive and destructive processes of conflict resolution.

There are many different programs of training in conflict resolution and their contents vary as a function of the age group of the students being trained and of their background. Nevertheless, there are some common elements running through most programs.

These common elements derive from the recognition that a constructive process of conflict resolution is similar to an effective, cooperative problem-solving process (where the conflict is perceived as a mutual problem to be solved) while a destructive process is similar to a win-lose, competitive struggle. In effect, most conflict resolution training programs seek to instill the attitudes, knowledge, and skills which are conducive to effective, cooperative problem-solving and to discourage the attitudes and habitual responses which give rise to win-lose struggles. Below, we list the central elements which are included in many training programs. These elements, along with the key ideas described above, provided the conceptual framework for our training program in conflict resolution.

1. Know what type of conflict you are involved in. There are 3 major types: the zero-sum conflict (a pure win-lose conflict); the mixed-motive conflict (both can win, both can lose, one can win and the other can lose); and the pure cooperative conflict (both can win or both can lose). It is important to know what kind of conflict you are in because the different types require different types of strategies and tactics (see Walton and McKersie, 1965; Lewicki and Litterer, 1985; Pruitt and Rubin, 1985). The common tendency is for inexperienced parties to define their conflict as win-lose even though it is a mixed-motive conflict. Very few conflicts are intrinsically win-lose conflicts but if you misperceive it to be such, you are apt to engage in a competitive, destructive process of conflict resolution. This is so except where there are very strong agreed-upon norms or rules regulating the nature of the competitive interaction (as in competitive games).

The strategies and tactics of the different types of conflict differ. In a zero-sum conflict one seeks to amass, mobilize, and utilize the various resources of power (Lasswell and Kaplan, 1950) in such a way that one can bring to bear in the conflict more effective, relevant power than one's adversary; or if this is not possible in the initial arena of conflict, one seeks to transform the arena of conflict into one in which one's effective power is greater than one's adversary's. Thus, if a bully challenges you to a fight because you won't "lend" him money and he is stronger than you (and you cannot amass the power to deter, intimidate, or beat him), you might arrange to change the conflict from a physical confrontation (which you would lose) to a legal confrontation (which you would win) by involving the police or other legal authority. Other strategies and tactics in win-lose conflicts involve outwitting, misleading, seducing, blackmailing, and the various forms of the black arts which have been discussed by Machiavelli (1950), Potter (1965), Schelling (1960), and Alinsky (1971), among others. The strategy and tactics involved in mixed-motive conflicts are discussed below. The emphasis here is on the strategy of cooperative problem-solving to find a solution to the conflict which is mutually satisfactory and upon the development and application of mutually-agreed upon fair principles to handle those situations in which the aspirations of both sides cannot be equally realized. The strategy and tactics of the resolution of cooperative conflicts involve primarily cooperative fact-finding and research as well as rational persuasion.

2. Become aware of the causes and consequences of violence and of the alternatives to violence, even when you are very angry. Become realistically aware of: how much violence there is; how many young people die from violence; the role of weapons in leading to violence; how frequently homicides are precipitated by arguments; how alcohol and drugs contribute to violence. Become aware of what makes you very angry; learn the healthy and unhealthy ways you have of expressing anger. Learn how to actively channel your anger in ways that are not violent and are not likely to provoke violence from the other. Understand that violence begets violence and that if you "win" an argument by violence, the other will try to get even in some other way. Learn alternatives to violence in dealing with conflict. Prothrow-Stith (1987) has developed a very helpful curriculum for adolescents on the prevention of violence.

3. Face conflict rather than avoid it. Recognize that conflict may make you anxious and that you may try to avoid it. Learn the typical defenses you employ to evade conflict -- e. g., denial, suppression, becoming overly agreeable, rationalization, postponement, premature conflict resolution. Become aware of the negative consequences of evading a conflict -- irritability, tension, persistence of the problem, etc. Learn what kinds of conflicts are best avoided rather than confronted -- e. g., conflicts that will evaporate shortly, those that are inherently unresolvable, win-lose conflicts which you are unlikely to win.

4. Respect yourself and your interests, respect the other and his or her interests. Personal insecurity and the sense of vulnerability often lead people to define conflicts as "life and death," win-lose struggles even when they are relatively minor, mixed-motive conflicts, and this definition may lead to "conflict avoidance," "premature conflict resolution," or "obsessive involvement in the conflict." Helping students to develop a respect for themselves and their interests enables them to see their conflicts in reasonable proportion and facilitates their constructive confrontation. Helping students to learn to respect the other and the other's interests inhibits the use of competitive tactics

of power, coercion, deprecation, and deception which commonly escalate the issues in conflict and often lead to violence.

Valuing oneself and others, as well as respect for the differences between oneself and others, are rooted in the fundamental moral commitment to the principle of universal human dignity. This core value and its derivatives should not only be emphasized in the curricula of many subject matters (e. g., literature, geography, history, social studies) from K through 12, in addition to the conflict-resolution curricula, but also should be learned by students from their observations of how teachers and school administrators treat students and other people in and around the schools.

5. Avoid ethnocentrism; understand and accept the reality of cultural difference. Be aware that we live in a community, a nation, a world in which there are people from many different cultures. People from different cultures may differ in their appearance, dress, behavior, perceptions, beliefs, preferences, values, and ways of thinking about conflict and negotiation, as well as in their history, from you. What you take to be self-evident and right may not seem that way to someone from a different cultural background and, conversely, what they take as self-evident and right may not seem that way to you. Learn to understand and accept the reality of cultural differences; try to understand the other's culture and try to help the other to understand yours. Expect cultural misunderstandings; use them as an opportunity for learning rather than as a basis of estrangement.

6. Distinguish clearly between "interests" and "positions." Positions may be opposed but interests may not be (Fisher and Ury, 1981). The classic example from Follett (1940) is that of a brother and sister, each of whom wanted the only orange available. The sister wanted the peel of the orange to make marmalade; the brother wanted to eat the inner part. Their positions ("I want the orange") were opposed, their interests were not. Often when conflicting parties reveal their underlying interests, it is possible to find a solution which suits them both.

7. Explore your interests and the other's interests to identify the common and compatible interests that you both share. Identifying shared interests makes it easier to deal constructively

with the interests that you perceive as being opposed. A full exploration of one another's interests increases empathy and facilitates subsequent problem-solving. For an excellent discussion of how to develop empathy and a sense of shared interests see Shulman and Mekler (1985).

It is evident that when considerable distrust and hostility have developed between the conflicting parties, it may be useful to have third parties help in this process of exploration. The third parties may serve one or more functions. They may serve as facilitators, conciliators (or therapists) who help the parties to control and reduce their distrust and hostility sufficiently to permit them to engage in this process themselves; they may serve as mediators who directly assist the parties in this process or even undertake the exploration for the conflicting parties, doing what the parties are unable or unwilling to do. There has been considerable discussion of such third-party intervention in Folberg and Taylor (1984), Kelman (1972), Kressel (1985), and Rubin (1980).

8. Define the conflicting interests between oneself and the other as a mutual problem to be solved cooperatively. Define the conflict in the smallest terms possible, as a "here-now-this" conflict rather than as a conflict between personalities or general principles, e. g., as a conflict about a specific behavior rather than about who is a better person. Diagnose the problem clearly and then creatively seek new options for dealing with the conflict that lead to mutual gain. However, not all conflicts can be solved to mutual satisfaction even with the most creative thinking. If no option for mutual gain can be discovered, seek to agree upon a fair rule or procedure for deciding how the conflict will be resolved. Here, agreement upon a fair procedure that determines who gets his or her way, or seeking help from neutral, third-parties when such an agreement cannot be reached, may be the most constructive resolution possible under the circumstances. See Lewicki and Litterer (1985) for an excellent discussion of the strategy and tactics of integrative bargaining. To the extent that the parties see the possibility of a mutually satisfying agreement, they will be more able to listen to one another in an understanding, empathic manner; and, of course, the converse is true too.

9. In communicating with the other, listen attentively and speak so as to be understood: this requires the active attempt to take the perspective of the other and to check continually one's success in doing so. One should listen to the other's meaning and emotion in such a way that the other *feels* understood as well as is understood. Similarly, you want to communicate to the other one's thoughts and feelings in such a way that you have good evidence that he or she understands the way you think and feel. The feeling of being understood, as well as effective communication, enormously facilitates constructive conflict resolution.

Johnson and Johnson (1987), Lewicki and Litterer (1985), Prutzman et al. (1988), and many others provide excellent discussions and practical exercises relevant to the development of skills in communicating and listening effectively. As a communicator, one wants to be skilled in obtaining and holding the other's attention, in phrasing one's communication so that it is readily comprehended and remembered, and in acquiring the credibility that facilitates acceptance of one's message. Skills in taking the perspective of others and in obtaining feedback about the effectiveness of one's communications are important. Listening actively and effectively entails not only taking the perspective of the other so that one understands the communicator's ideas and feelings but also communicating the desire to understand the other and indicating through paraphrasing one's understanding or through questions what one does not understand. Role reversal seems to be helpful in developing an understanding of the perspective of the other and in providing checks on how effective the communication process has been.

10. Be alert to the natural tendencies to bias, misperceptions, misjudgments, and stereotyped thinking that commonly occur in oneself as well as in the other during heated conflict. These errors in perception and thought interfere with communication, make empathy difficult, and impair problem-solving. Psychologists can provide a check list of the common forms of misperception and misjudgment occurring during intense conflict. These include black-white thinking, demonizing the other, shortening of one's time-perspective, narrowing of one's range of perceived options, and the fundamental attribution error. The fundamental attribution error is illustrated in the tendency to attribute the aggressive actions of the other to the other's personality

while attributing one's own aggressive actions to external circumstances (such as the other's hostile actions). The ability to recognize and admit one's misperceptions and misjudgments clears the air and facilitates similar acknowledgment by the other. (See Jervis, 1976; Kahnemen, Slovic, and Tversky, 1982; Nisbett and Ross, 1980.)

11. Develop skills for dealing with difficult conflicts so that one is not helpless nor hopeless when confronting those who are more powerful, those who don't want to engage in constructive conflict resolution, or those who use dirty tricks. Fisher and Ury (1981) have discussed these matters very helpfully in the final three chapters of their well-known book, Getting to Yes. We shall not summarize their discussion but rather emphasize several basic principles. First, it is important to recognize that one becomes less vulnerable to intimidation by a more powerful other, to someone who refuses to cooperate except on his or her terms, or to someone who plays dirty tricks (deceives, welshes on an agreement, personally attacks you, etc.) if you realize that you usually have a choice: you don't have to stay in the relationship with the other. You are more likely to be aware of your freedom to choose between leaving or staying if you feel that there are alternatives to continuing the relationship which you can make acceptable to yourself. The alternative may not be great but it may be better than staying in the relationship. The freedom to choose prevents the other, if he or she benefits from the relationship, from making the relationship unacceptable to you.

Second, it is useful to be open and explicit to the other about what he or she is doing that is upsetting you and to indicate the effects that these actions are having on you. If the other asserts that you have misunderstood or denies doing what you have stated, and if you are not persuaded, be forthright in maintaining that this remains a problem for you: discuss with the other what could be done to remove the problem (your misunderstanding of the other, your need for reassurance, or the other's noxious behavior).

Third, it is wise to avoid reciprocating the other's noxious behavior and to avoid attacking the other personally for his behavior (i. e., criticize the behavior and not the person); not doing so often leads to an escalating vicious spiral. It is helpful to look behind the other's noxious behavior with such questions as: "I wonder what you think my reaction is to what you have said?" "I am really curious. What do you think this will gain for you?" It is also sometimes useful to suggest to the other more appropriate or better means for pursuing his or her interests than the ones that he or she is currently employing.

A phrase that is useful in characterizing the stance one should take in difficult (as well as easy) conflicts is to be "firm, fair, and friendly." *Firm* in resisting intimidation, exploitation, and dirty tricks; *fair* in holding to one's moral principles and not reciprocating the other's immoral behavior despite his or her provocations; and *friendly* in the sense that one is willing to initiate and reciprocate cooperation.

12. *Know oneself and how one typically responds in different sorts of conflict situations*. As has been suggested earlier, conflict frequently evokes anxiety. Clinical work has shown that the anxiety is often based upon unconscious fantasies of being overwhelmed and helpless in the face of the other's aggression or of being so angry and aggressive oneself that one will destroy the other. Different people deal with their anxieties about conflict in different ways. It is useful to emphasize six different dimensions of dealing with conflict which can be used to characterize a person's predispositions to respond to conflict. Being aware of one's predispositions may allow one to modify them when they are inappropriate in a given conflict. The six dimensions follow below:

(a) *Conflict avoidance -- excessive involvement in conflict*. Conflict avoidance is expressed in denial, repression, suppression, avoidance, and continuing postponement of facing the conflict. Sometimes it is evidenced in premature conflict resolution, fleeing into an agreement before there is adequate exploration of the conflicting interests and of the various options for resolving the conflict. Usually, the conflict which is avoided does not go away, the tension associated with it is expressed in fatigue, irritability, muscular tension, and a sense of malaise. Excessive involvement in conflict is sometimes expressed in a "macho" attitude, a chip on one's shoulder, a tendency to seek out conflict to demonstrate that one is not afraid of conflict. It is also commonly expressed in a preoccupation with conflict, obsessive thoughts about fights, disputes, quarrels, etc. with much rehearsing of moves and countermoves between oneself and one's adversaries. Presumably, a healthy predisposition involves the readiness to confront conflict when it arises without needing to seek it out or to be preoccupied with it.

(b) Hard -- soft. Some people are prone to take a tough, aggressive, dominating, unyielding response to conflict fearing that otherwise they will be taken advantage of and be considered soft. Others are afraid that they will be considered to be mean, hostile, or presumptuous and, as a consequence, they are excessively gentle and unassertive. They often expect the other to "read their minds" and know what they want even though they are not open in expressing their interests. A more appropriate stance is a firm support of one's own interests combined with a ready responsiveness to the interests of the other.

(c) Rigid -- loose. Some people immediately seek to organize and to control the situation by setting the agenda, defining the rules, etc. They feel anxious if things appear to get out of control and feel threatened by the unexpected. As a consequence, they are apt to push for rigid arrangements and rules and get upset by even minor deviations. At the other extreme, there are some people who are aversive to anything that seems formal, limiting, controlling, or constricting. They appear to like a loose, improvisational, informal arrangement in which rules and procedures are implicit rather than overt. An approach which allows for both orderliness and flexibility in dealing with the conflict seems more constructive than one that is either compulsive in its organizing or in its rejection of orderliness.

(d) Intellectual -- emotional. At one extreme, emotion is repressed, controlled, or isolated so that no relevant emotion is felt or expressed as one communicates one's thoughts. The appearance is of someone who is calm, rational, and detached. Frequently, beneath the calm surface is the fear that if one feels or expresses one's emotions, they will get out of control and one will do something destructive, foolish, or humiliating. However, the lack of appropriate emotional expressiveness may seriously impair communication. The other may take your lack of emotion as an indicator that you have no real commitment to your interests and that you lack genuine concern for the other's interests. At the other extreme, there are some people who believe that only feelings are real and that words and ideas are not to be taken seriously unless they are thoroughly soaked in emotion. The emotional extravagance and intensity of such people also interferes with communication. It impairs the ability to mutually explore ideas and to develop creative solutions to impasses; it also makes it difficult to differentiate the significant from the insignificant if even the trivial is accompanied with intense emotion. The ideal mode of communication combines thought and affect: the thought is supported by the affect and the affect is explained by the thought.

(e) Escalating versus minimizing. At one extreme, there are some people who tend to experience any given conflict in the largest possible terms. The issues are cast so that what is at stake involves one's self, one's family, one's ethnic group, precedence for all-time, or the like. The specifics of the conflict get lost as it escalates along the various dimensions of conflict: the size and number of the immediate issues involved; the number of motives and participants implicated on each side of the issue; the size and number of the principles and precedents that are perceived to be at stake; the cost that the participants are willing to bear in relation to the conflict; the number of norms of moral conduct from which behavior toward the other side is exempted; and the intensity of negative attitudes toward the other side. Escalation of the conflict makes the conflict more difficult to resolve constructively except when the escalation proceeds so rapidly that its absurdity becomes self-apparent. At the other extreme, there are people who tend to minimize their conflicts. They are similar to the conflict avoiders but, unlike the avoiders, they do recognize the existence of the conflict. However, by minimizing the seriousness of the differences between self and other, by not recognizing how important the matter is to oneself and to the other, one can produce serious misunderstandings. One may also restrict the effort and work that one may need to devote to the conflict in order to resolve it constructively.

(f) Compulsively revealing -- compulsively concealing. At one extreme there are people who feel a compulsion to reveal whatever they think and feel about the other -- including their suspicions, hostilities, and fears -- in the most blunt, unrationalized, and unmodulated manner. Or they may feel they have to communicate every doubt, sense of inadequacy, or weakness they have about themselves. At the other extreme there are people who feel that they cannot reveal any of their feelings or thoughts without seriously damaging their relationship to the other. Either extreme can impair the development of a constructive relationship. One, in effect, should be open and honest in communication, but appropriately so, taking into account realistically the consequences of what one says or does not say and the current state of the relationship.

13. Finally, throughout conflict, one should remain a moral person -- i. e., a person who is caring and just -- and should consider the other as a member of one's moral community -- i. e., as someone who is entitled to care and justice. In the heat of conflict, there is often the tendency to shrink one's moral community and to exclude the other from it: this permits behavior toward the other which one would otherwise consider morally reprehensible. Such behavior escalates conflict and turns it in the direction of violence and destruction.

Because of the similarity in the cooperative problem-skills required in both cooperative learning and conflict resolution, we anticipated that the effects of the conflict resolution training would be similar to those of the training in cooperative learning. However, we expected some differences: students who were exposed only to the cooperative learning would have had more training and experience in working together cooperatively and effectively in groups than the students who were only exposed to conflict resolution training; the latter students, on the other hand, would have had more training and experience in resolving conflicts constructively. These differences would be reflected in the assessments of how much improvement they experienced in working in groups and how much improvement there had been in managing their conflicts.

The Training Interventions

Cooperative learning

The model of cooperative learning that was employed in our training was the one developed by David and Roger Johnson of the Center For Cooperative Learning at the University of Minnesota. Our trainers were trained by the Johnsons and they made available to the teachers of AHS various books and teaching materials developed by the Johnsons to assist the teachers in implementing cooperative learning in their classrooms.

Johnson, Johnson, and Holubec (1986, p. 8) have pointed out:

> Many educators who believe that they are using cooperative learning are, in fact, missing its essence. There is a crucial difference between simply putting students into groups to learn and in structuring cooperative interdependence among students.
>
> Cooperation is not having students sit side-by-side at the same table to talk with each other as they do their individual assignments. Cooperation is not assigning a report to a group of students where one student does all the work and the others put their names on the product as well. Cooperation is much more than being physically near other students, discussing material with other students, helping other students, or sharing material among students, although each of these is important in cooperative learning. There are five basic elements that must be included for small group learning to be truly cooperative.
>
> The first is **positive interdependence**. Students must perceive that they "sink or swim together." This may be achieved through mutual goals (goal interdependence); divisions of labor (task interdependence); dividing materials, resources, or information among group members (resource interdependence); assigning students roles (role interdependence); and by giving joint rewards (reward interdependence). In order for a learning situation to be cooperative, students must perceive that they are positively interdependent with the other members of their learning group.
>
> Second, cooperative learning requires **face-to-face interaction** among students. There is no magic in positive interdependence in and of itself. It is the interaction patterns and verbal interchange among students promoted by the positive interdependence that affect education outcomes.
>
> The third basic element of cooperative learning is **individual accountability** for mastering the assigned material. Each group member is responsible for learning the assigned material. The purpose of a learning situation is to maximize the achievement of each individual student. Determining the level of mastery of each student is necessary so that students can provide appropriate support and assistance to each other.
>
> Finally, cooperative learning requires that students appropriately use **interpersonal and small group skills**. Placing socially unskilled

> students in a learning group and telling them to cooperate obviously will not be successful. Students must be taught the social skills needed for collaboration and be motivated to use them. Students must also be given the time and procedures for **processing** (i. e., analyzing) how well their learning groups are functioning and the extent to which students are employing their social skills to help all group members to achieve and to maintain effective working relationships within the group.

Our goals for the AHS teachers who were being trained in cooperative learning were to: (1) have them learn a model of cooperative learning (we employed the Johnson model described above); (2) have them learn how to create cooperative lessons for use in their classrooms; (3) motivate them to use cooperative learning in their classes; (4) have them practice using cooperative learning in their classes; and (5) have them help one another in developing their knowledge and skills relating to cooperative learning.

The cooperative learning training took place at an initial two day workshop in August of 1988 and through periodic after-school workshops during the school year, combined with individual conferences once a week with teachers who requested them. The training is described in greater detail in a subsequent chapter. We note that usually it takes about three years of training and experience in implementing the Johnson and Johnson model of cooperative learning before teachers feel that they are proficient in its use. A typical pattern of development is that teachers start experimenting on a trial basis with cooperative learning in some of their classes during the first year of training; in the second year they become more committed to cooperative learning and use it regularly but they do not yet feel fully comfortable with it; in the third year they start to be comfortable and innovative in using it in their classes.

Conflict Resolution Training

The training in conflict resolution was designed for two different but interactive audiences: students and the faculty.

Faculty Training

Goals.

1. **To learn the theory and methods of conflict resolution.** Although most teachers have to handle conflict in their classrooms and in their own lives, few have had formal training in the theory and practice of conflict resolution. Training of this kind would provide them with a framework with which they could evaluate their own practice.

2. **To understand their own values and attitudes towards conflict.** Many of the teachers at AHS come from a class and ethnic background different from the students they teach. We know from research (Weiss and Stripp, 1984; Hofstede, 1986) and observation that culture and class have an impact on one's attitude and response to conflict. Teachers need to know their own values before they accept the pedagogical challenge of teaching conflict resolution across class and ethnic boundaries.

3. **To assess their skills as conflict resolvers.** Before teachers can teach students, they must improve their own awareness and use of basic negotiation and mediation skills so they can serve as role models of effective conflict resolution behavior.

4. **To integrate these theories and methods into their existing school philosophies.** Every school has an implicit or explicit philosophy as to the purpose of education. Each campus of AHS must integrate conflict resolution theory and methods into their current practice to make it their own. This is the only way this kind of program can be institutionalized after our staff leaves.

5. **To review existing and/or create new curriculum materials appropriate for their students.** The faculty at AHS currently develop most of the curriculum material used at the school. The conflict resolution material which is available serves as a source. During the first year of our study, teachers were encouraged to "try on" various instructional activities, with our staff serving as guides, through the existing materials. Most faculty members do not have the time to develop the instructional activities themselves. However, it was expected that in the second year,

after their prior exposure to a range of instructional activities in conflict resolution, faculty would be able to mold their training of the students at AHS to fit the needs of these students and to fit their own teaching styles. The initial training for teachers in conflict resolution occurred during three days in August, 1988. During the following academic year, training occurred during after-school workshops held periodically and through weekly meetings with teachers who requested them. At Campus A, the trainer was often asked to teach the conflict resolution classes for students. Further discussion of the training is provided in Chapter V.

Student Training.

The faculty and ICCCR trainers were responsible for student training, which took place in Family Groups, occupational education classes, and orientation classes. These classes meet three times a week. Family Group is a chance for students to informally discuss personal problems they are having at school or in their lives with their peers and their family group faculty advisor. Topics vary from class to class depending on what the students bring up. The faculty also present topics and activities in Family Group to meet particular group needs. Orientation classes provide incoming AHS students with behavioral and academic guidelines. Faculty received support from our staff in implementing the training through role-playing, discussion groups, group projects, etc. There was a suggested series of topics; however, each teacher was free to move at her/his own pace. The topics are listed below. These were tentative and could be changed if necessary to meet the emerging needs of the students and staff.

1. *Violence Prevention*. From a pilot study conducted at one of the sites, it was learned that many students at AHS use fighting and verbal abuse as ways to resolve some of the conflicts they find themselves in. While fighting at school is an immediate cause for dismissal, there appears to be a culture clash between "the rules at school" and the expected norms of "the street."

The Boston Violence Prevention project (Prothow-Stith, 1987) was designed to show teens from communities where violence is the "street norm" the extent to which they are "at risk" of injury or death. The curriculum points out that many of the homicides which occur result from a fight with someone you know in which a weapon and/or alcohol is present. The curriculum also helps students to understand that anger is normal, but that they have a choice as to how they can express their anger. The final chapters teach violence prevention strategies.

It was assumed that the discussion flowing from this topic would help students and teachers to distinguish those situations that were negotiable (conflict between people who know each other and have reasons to maintain that relationship) from situations that were non-negotiable (random and instrumental violence) and which occur often in the "street." These conflicts are best avoided if possible; negotiation would not be appropriate.

2. *Basic Negotiation Skills.* Deutsch has outlined a theoretical framework for conflict resolution in the schools, and Raider has developed a method for teaching negotiation skills. With these as a guide, and borrowing from the seventy-six lesson plans created by the San Francisco Community Board, faculty and students were to explore such topics as:

Active listening: checking to see whether you understand the other person correctly and whether he/she understands you correctly.

"I" messages: telling the other person what you think, not reading the other person's mind and telling him/her what he/she thinks.

"Needs" versus positions: talking about the needs, interests, and feelings of you and the other person rather than your opposing positions.

Negotiable versus non-negotiable conflicts: kinds of conflicts which should be avoided because there are no good solutions.

Individual conflict style: how you personally tend to deal with most conflicts; what kinds of conflict styles different people have.

Putting yourself in the other peoples' shoes: how other peoples' view points might be different from yours; how to understand the other person's point of view.

Anger and violence: how anger affects your ability to handle conflict.

Reframing the issues in conflict: talking about the issues in other ways to find more common ground between yourself and the other person.

Criticize ideas and not people: criticize what people say rather than who or what they are.

"Win-win" solutions to conflict versus compromises: finding solutions where everyone gets what they need, rather than solutions where everyone gets some of what they need.

3. *Applying Negotiation Skills*. Role play, group activities, and discussion groups were to be utilized in the practical application of negotiation skills to the students' lives in home, school, and work settings.

4. *Basic Mediation Skills*. Mediation skills were to be taught. The students would have the opportunity to practice mediation by facilitating constructive conflict resolution. It was assumed that helping others would reinforce one's desire to use the newly learned skills in one's own conflicts.

In the preceding pages, we have outlined our initial plans for training in cooperative learning and conflict resolution. In Chapter V, there is a description of the actual training at the three different campuses. It will become clear that we had to modify our training plans to make them more responsive to the realities, needs, and time pressures of the teachers whom we were training.

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Chapter III: Methodology[*]

Two kinds of methodologies were employed in this study: qualitative and quantitative. The qualitative approach relies mainly on observations, supplemented by interviews with key informants. Its objective is to provide a rich, ethnographic description of: AHS and the three campuses; implementation of our training and its reception; and the settings within which the training and research were taking place. The ethnographic description and analysis provide a context for interpreting the data that are obtained through the quantitative methods. This latter approach relies mainly on questionnaires and interviews with a sample of the population under study. Its aim is to provide measures of the various effects of our training interventions as well as to provide measures of student exposure to the training. Below, we describe in greater detail the two methodologies that we employed.

Qualitative Methodology

During the first year of the project some direct observations and interviews were conducted at the campuses from time to time. In an effort to systematize these techniques and organize them into a qualitative database, another component was added to the research design at the beginning of the second year (academic year 1989-90). Using the fundamentals of ethnographic research as a basis, this additional part of the design called for direct observations of training sessions, randomized observations of the daily routine of students in the school, systematic observations of special events and internship settings, and interviews with key members of the faculty and staff.

Approach and Logic

Employing the methods of ethnographic research, we developed a qualitative focus on the students, teachers, administrators, staff persons, and trainers. Our observations captured the physical, procedural, temporal, and behavioral aspects of people in these roles. Detailed fieldnotes were maintained targeting such organizational and climatic factors of the school as: how the training was conducted; the nature and extent of the implementation of the training; and factors in the school which helped or hindered the implementation.

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[*] This chapter was prepared by Vernay Mitchell and Morton Deutsch.

The nature of our training intervention and the study derived from it necessitated a multi-methodological approach, one which would enable us to capture the various dimensions of the project -- the school as an educational and social setting, the interventions within it, and the effects of the intervention. The qualitative data provided a foundation of information which helped to contextualize the quantitative parts of the study. Each of these two distinct approaches acted to corroborate the findings of the other, especially since the study relied heavily on self-report data. The unification of findings from qualitative and quantitative approaches strengthens the conclusions and interpretations to be drawn from the research.

Organization of Researchers

Five members of the research team conducted the fieldwork during which qualitative data were collected. One research associate planned and supervised the effort, making regular visits to each campus to interview and observe. Three research assistants were assigned to do qualitative fieldwork, one at each campus. A fourth research assistant, assigned to Campus A, worked as a site researcher and as an assistant trainer.

Fieldnotes were generated during each visit to a site. All of the fieldworkers were doctoral students in social science. As the qualitative study was systematized in September of 1989, the research assistants were trained in qualitative methods of field research.

Research Activities

The specific techniques used by the qualitative researchers were the following: (1) general observations of the schools conducted in offices, hallways, and leisure areas; (2) focused observations conducted at meetings and special events; (3) participation in and observations at the conflict resolution and cooperative learning training sessions conducted for teachers and students;

(4) participation in and observations of student life by following the class schedules of randomly selected students on systematically selected days throughout the school year (the choice of days approached a random sample; however, some variation was necessary in order to fit the observations around the academic schedules of the researchers and the testing schedule of the school); (5) semi-structured interviews with students, faculty, staff members, and trainers; and (6) analysis of materials and information which have been written about the school. We logged well over 100 occasions from September, 1989, through June, 1991, on which researchers collected qualitative data systematically at Alternative High School.

Handling of Data

The resulting database required a comprehensive system of management. In the Spring of 1990, we purchased the software program IZE (Persoft, 1988). Using this data management system, we organized the qualitative data into a textbase from which related findings could be extracted and analyzed. As we transcribed and coded our fieldnotes they were entered into the IZE program, forming a database of 104 files with approximately 5500 paragraphs of coded information.

From this database we produced descriptive portraits of the three school sites as well as portraits of our efforts to implement training in conflict resolution and/or cooperative learning. The organization of these data allowed us to cross check and verify the particulars about which we report.

Quantitative Methodology

We collected much data during the course of this study. Questionnaires were filled out by students, teachers, and the work supervisors of students; interviews were conducted with a sample of the students. The research instruments that we employed are in Appendix C of the Year III Progress Report. Each of these instruments is briefly described below.

The Initial Student Questionnaire

This questionnaire was given to students as a pretest questionnaire (i.e., before they had been exposed to our training). Table III-1 indicates how many students were administered the initial questionnaire, at a given date, and whether they filled out the items relating to their impressions of the school characteristics in terms of AHS or their prior high school.

The questionnaire contained 28 full pages of questions which took, on the average, about 1 1/2 hours to complete. It contains a number of well-established measures, other measures we have borrowed from other studies of high school students, and measures we have derived from factor analysis of items in the questionnaire. Below we briefly describe the measures that were most widely employed in our data analyses.

Self-esteem. The Rosenberg Self-esteem Scale (SES) (1965) was employed to measure students' self-worth or self-acceptance aspects of self-esteem. The ten items were answered on a 4-point scale, from "strongly agree" to "strongly disagree," although the original scoring only distinguishes between agree or disagree. This short scale was designed to optimize ease of administration, economy of time, unidimensionality, and face validity.

A Guttman scaling format is recommended. For Guttman scaling, two or three correct out of the first three are scored as one item; two correct of 4 and 5 as one item, and two correct of 9 and 10 as one item.

The validation information was reported by Silber and Tippett (1965), Crandall (1976), and Blascovich and Tomaka (1991). Reynolds (1988) found a correlation of .38 between SES scores and overall academic self-concept. The Rosenberg measure correlated .72 with the Learner Self-esteem Scale. Fleming and Courtney (1984) found that SES scores correlated .78 with general self-regard; .51 with social confidence; .35 with school abilities; and had no significant correlations with gender (.10), age (.13), and work experience (.07).

Locus of control. This was operationalized by a six-item short scale which was adapted from the High School and Beyond study (Lefcourt, 1981, 1984). Levenson (1981) indicated that there were three components included in the measures of locus of control: self, powerful others, and chance. Our measure, with a 5-point scale for each item from "strongly agree" to "strongly disagree," was intended to cover all three aspects despite the small number of items. The scale was developed originally for an ad hoc function, and it was not previously documented. Thus the validation information will be provided in the present study.

Mental health and physical health. The measures for mental and physical health in this study were developed by Harold J. Dupuy for the National Center for Health Statistics, originally named as the General Well-being Schedule (GWB) (Ware, et al., 1979). It is normed on a population aged 14 and above and contains six subscales: anxiety, depression, positive well-being, self-control, vitality, and general health. The first four subscales were used by Veit and Ware (1983) to compose the Mental Health Inventory (MHI). By re-organizing the items, we obtained measures for positive mental states, negative mental states, and physical health, as suggested by Veit and Ware (1983).

The General Well-being Schedule is a structured instrument for assessing self-representations of subjective well-being. The original schedule contains 33 items, 14 with six response options, 4 with 0-10 rating bars, and 15 self-evaluation behavioral items. Scale norms are available from a sample of 79 male and 119 female students in a freshman psychology class at the University of Wisconsin, Milwaukee (Fazio, 1977). The internal consistency coefficient was .91 for men and .95 for women.

Convergent validity was shown such that the total score correlated .47 with an independent assessment of depression, and with the six subscales correlations ranging from .27 to .44. It correlated .69 with six other measures such as PFI, PSS, CHQ anxiety scales (.41, .40, .10) and HQ, Zung, and MMPI depression scales (.35, .28, .21). The correlation with the PFI depression scale, however, was slightly higher (.50) (Andrews and Robinson, 1991).

Achievement. Student academic achievement was measured by the New York State Regents' Competency Test (RCT). The RCT is designed to test the minimum proficiency of high school students in New York in order for them to obtain their diploma. Six subject areas are included: math, reading, writing, science, global history, and American history. The test is normally administered once a year in winter. Make-up tests may be offered in spring or summer.

The raw scores of the students on the RCT were used in the present study. Since students do not take the RCT until they are ready to graduate, their RCT scores should be a good indicator of their academic achievement after exposure to the intervention. Average scores for each student of all the test subjects were computed as our achievement measure.

Social support. This was assessed by twelve items in which the students were asked to rate "which areas are upsetting or helpful to you when dealing with problems." The ratings were done on a 5-point scale which ranged from "very upsetting" to "very helpful." The areas which were rated included: my family, my school, my work/job, my friends, my boyfriend/girlfriend, my neighborhood, and social workers, counselors, police, etc. Our qualitative data indicate that students defined social support as "being taken care of," "being in favor of," "providing information or explanations," "emotional or psychological help," "being on one's side," "protection," "providing services or material facilities," and "encouragement or positive feedback."

Victimization. This scale consisted of twelve items that were borrowed from the Kohlberg "Just Community Project." The students rated how often in the past three months on a 6-point scale (from "everyday" to "never") the following sort of events happened: "I was insulted or threatened. . . "; "Someone forced me to hand over money or things. . . "; "I received sexual attention. . . that offended me. . . "; "I was offended by name calling or swearing. . . "; "I was physically attacked in school. . . "

School crime. This scale was composed of five items from a set of items dealing with disciplinary problems in the school which were taken from the High School and Beyond study (Lefcourt, 1984). The questions asked, "How much of a problem are the following disciplinary situations at AHS?" The different questions asked about drugs, stealing, drinking, weapons, and vandalism on campus. The students responded on a 4-point scale (from "everyday problem" to "not a problem").

Problem-solving. Problem-solving was operationalized as a coping strategy. The instrument measuring generalized problem-solving skills consisted of eight Likert-type items answered on a 5-point scale ranging from "always" to "never." The items were constructed for the purposes of this study on the basis of previous research (Folkman & Lazarus, 1980). The items described cognitive, behavioral, and affective responses to the encountered items. The cognitive responses included such items as: When I have a problem to solve, I think about similar problems and how I solved those. The behavioral responses included such items as: I try out the first thing that comes to mind and keep trying till something works out. The affective responses included such items as: I try to make myself feel better by eating, drinking, smoking, or using drugs. A principal components analysis of this scale revealed two clear dimensions underlying the perceived generalized problem-solving skills: 1) a systematic/planned approach to problems; and 2) an avoidant/ineffective, unplanned, impulsive approach to problems.

Work-readiness questionnaire. Included in the first questionnaire was a set of items (adapted from Kuder, 1966, and Super, 1970) in which the students were asked to respond to items concerning their future employment. Specific questions measured the amount of work-related information students obtained from different resources (e.g., school, family); work values (e.g., job autonomy, job security, work success); and the knowledge relevant for obtaining employment. In addition to the subjective assessment of adolescent vocational readiness, their work-related knowledge was objectively assessed.

School climate. In addition to the foregoing, a variety of items dealt with what might be called "school climate." Through factor analysis of these items two sets of factors resulted. The first consists of what we have termed "external" factors. These are factors which represent the student's perception of the environment in general. The second set consists of "internal" factors. These factors represent aspects of the perceived climate which are specific to the student making the ratings.

As an illustration, consider the factors "victimization exists" and "individual victimization." The first is computed from items asking how often various things occur in the environment in general, such as students bringing weapons to school, students damaging school property, or students (in general) being offended by racial or ethnic put-downs. The second asks how often the student making the ratings has been victimized, for example, by being mugged for jewelry, being physically attacked, or being pressured to have sex.

The third set of factors were derived from the ratings of a particular class. As noted above, students were asked to pick the class they attended most often in the last month,[1] and answer a series of questions with reference to that class.

External Factors

Discipline. One set of questions asked how much of a problem various issues were at the school. Two factors emerged from this set. The first of these factors seemed to represent general disciplinary issues, such as obedience, respect, attendance and violence.

Criminal Activity. From the same set of questions a second factor emerged which seemed to represent problems more explicitly criminal in nature--such as drugs, drinking, violence, weapons and stealing--than those in the factor above.

Empowerment. Another set of questions asked about issues of school policy. This also resolved into two factors. The first dimension seemed to represent student empowerment in policy issues. It was driven primarily by questions about the extent to which students participate in policy-making and have control over their work.

Clarity and Fairness of Policy . The second policy dimension seemed to represent the clarity and fairness of school policies. It was driven primarily by questions about the extent to which rules are clearly understood, and fairly and evenly applied.

Alienation. Students answered a number of general questions about AHS. One component seemed to represent the extent of a generalized feeling of alienation. This set consisted of items about trust among students, trust between students and teachers, and whether students who get good grades are popular.

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[1] Students who said they attended all their classes equally were asked to pick the class which met more often. If this did not simplify the choice, they were asked to rate any of the more frequently attended classes they wished to.

Academic Support. This factor was comprised of items about the difficulty of school work, and whether it is frequently discouraging. An item asking whether teachers expect a lot contributed weakly to the factor as well.[2] We thought at first that higher standards would be the "positive" direction on this factor. However, this factor is significantly correlated with "liking for school and learning," a factor from the Internal set, such that as students find school work easier and less discouraging, they report more liking for AHS and more enthusiasm about learning. This suggests that the "positive" direction on this factor in the minds of the students is work being less discouragingly difficult, and teachers' expectations being more reasonable (rather than "too low" or "too high").

Group Learning. Four items asked about learning in groups in general, and resolved into two factors. The first, called Group Learning, asks whether students learn in small groups, and whether teachers help them learn how to work together in groups. This factor does not necessarily imply that the group work is cooperative.

Promotive Interdependence. The second factor which emerged out of this group of items asks more specifically about whether the relationship in small work groups is promotively interdependent: i.e. cooperative. It contains items about whether students have to help each other to get a good grade and whether others feel let down if you fail.

Victimization Exists. This factor was described above. It was driven primarily by items about the extent to which victimization exists in the school in general, and less so by items about whether the student in particular had been victimized. Included were questions about the frequency with which students brought weapons to school, damaged school property, and offended each other with racial or ethnic slurs.

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[2] This item loaded on the factor at .47, while we have used the criterion of a loading of .50 for consideration of items in interpreting a factor.

Internal Factors

Social Image. Students answered a number of items rating how they believed other students viewed them. The first factor to come out of these questions concentrated on items about social standing, particularly: popularity, social activity, importance, leadership, and athleticism.

Academic Image. The second factor to emerge from the ratings of how students think they are perceived by their peers was composed primarily of the extent to which students thought they were seen as good students or trouble makers.

Liking For School And Learning. This factor emerged from the same set of general questions about the school as "alienation" and "academic support" of the External factor set. It was comprised of questions about excitement about learning, the importance of doing well, and liking for school.

Individual Victimization. This factor was described in the introduction to this section. It was driven by items asking about the frequency with which the student was victimized in various ways, including theft, vandalism, name calling, and unwanted sexual attention.

Friend Academics. Students were asked to rate their closest friend on a number of attributes. One factor emerging from the ratings was driven by academic issues such as grades, college plans, and attendance.

Friend Popular. The second factor from ratings of best friends was composed almost exclusively of the friend's popularity.

School Supportive. Students rated the degree to which the school was supportive or upsetting to them. This was also a single questionnaire item.

Classroom Ratings

Class Liking/Learning. This factor represented the degree to which students liked the class and the teacher, and their enthusiasm for learning in the class. It was driven by items asking how much the student liked the class, felt confident s/he would do well, thought the teacher cared and was a good teacher, and thought students learned in the class.

Class Cooperativeness. The classroom ratings included a number of items which correspond to essential characteristics of cooperative versus competitive social relations (see Deutsch, 1985). Several of these clustered together in the factor analysis, creating a factor which seems to indicate the degree to which the classroom climate was cooperative or competitive in nature. The items included whether students felt they had to win out over others in order to do well, whether working with others was a waste of time, how easy or hard it was to find students willing to help them, whether students were likely to put each other down, whether they felt nervous in the class, whether they cared about learning in the class, and whether they did learn in the class.

Class Student Social Climate. This factor represented the general tenor of social relations among students in the class. It was driven by items asking about such things as whether the student had good friends in the class, and felt that others cared about his/her feelings, or really listened to one another.

In addition, the questionnaire contained items about the students' sex, age, ethnic identification, their educational plans, and their family background.

The Posttest Student Questionnaire

This questionnaire included measures of all the key variables of the initial questionnaire. In addition, it included measures of the student's improvement in working effectively in groups and in resolving conflicts. It also included a measure of the student's conflict style. Further, it contained questions which pertained directly to the student's experiences with the cooperative learning and/or conflict resolution training. For example, how frequently was he/she in a class which had such training? Which of a list of conflict resolution topics were discussed or which cooperative learning activities were used in their classes? Was the training useful to them? What did they like and dislike about the training.?

Table III-1 indicates how many students took the posttest questionnaires and when; the post-posttest questionnaire was similar to the posttest questionnaire. As we noted in the introductory chapter, the discrepancy in numbers between the numbers of students taking the pretest and posttest questionnaires is largely accounted for by the high dropout rate and irregular attendance by AHS students.

Employer Rating Scale (ERS). Supervisors at the work sites were asked to rate student work performance at the end of the internship. The interns were rated regarding their responsibility, effectiveness on the job, dress, enthusiasm, timeliness, initiative, persistence at difficult tasks, response to instructions and criticisms, cooperation with others, and leadership potential. The ERS was mailed to the employers. During the course of the study, ratings for a total of 86 students were obtained.

Behavior Rating Scale (BRS). A Behavior Rating Scale was administered to teachers. They were asked to rate various behaviors of a random sample of students such as effectiveness, hardiness, planfulness, social withdrawal, etc.

Interview Protocols

An intensive sample of students (about 34 at each campus) was randomly selected to be interviewed at the end of the first year of training. The interviews were constructed to tap the experiences of the students with regard to cooperative learning and conflict resolution. Students were asked for classroom examples as well as personal examples of their own use of the skills being infused into their classrooms. Assessment of the students' ability to generalize these skills beyond the classroom was also a focus of these interviews. Additionally, students were asked to contribute suggestions for improving our training program.

Teacher Questionnaires

Initial questionnaires were filled out by 33 teachers at AHS in June, 1988, before our training started; an interim questionnaire was filled out by 19 teachers in the Summer of 1989, after the first year of training; and a final questionnaire was completed by 36 teachers in June, 1990, at the end of the second year of training. The relatively low return rate for the interim questionnaire was due largely to errors by the researchers and this questionnaire was not used in our analyses.

The initial questionnaire aimed to obtain information about the teacher's educational goals for students, his/her teaching methods, relations with colleagues, and his/her perceptions of the school climate and student problems. In addition, it included the Maslach scale of teacher burnout and various items relating to the teacher's education and experience. The final questionnaire contained many of the same items as the initial one, including the Maslach scale. Moreover, it had a series of questions relating to their use of cooperative learning and/or conflict resolution in their classrooms and their evaluation of the effects of the training upon their students.

Student Exposure Measures

Student exposure measures were constructed for both of our interventions. The measure of exposure to the cooperative learning intervention was used in every study except Lynch's (see Chapter XI for a description of the measure used by Lynch). This measure was composed by utilizing the variable "percentage of time used in systematic small-group teaching in your class" in the Teacher Questionnaire and the sum of the time each student spent with different teachers in the classes he or she attended. The measure of exposure to the conflict resolution intervention at Campus A was derived from the amount of time each student spent in class with the ICCCR site trainer.

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Table III-1

Log of Questionnaire Administration

DATE	TYPE OF MEASUREMENT	N	SCHOOL CLIMATE MEASURED
5/88	PRE	350	AHS
9/88	PRE	291	OTHER
5/89	PRE	44	OTHER
9/89	PRE	126	OTHER
1/90	PRE	15	OTHER
5/90	PRE	29	OTHER
5/89	PRE	46	AHS
1/90	PRE	46	AHS
5/90	PRE	109	AHS
5/89	POST	190	AHS
1/90	POST	64	AHS
5/90	POST	108	AHS
5/90	POSTPOST	96	AHS

Table III-1A

Pre-Test Dates for Post-Tested Students

Crosstab of pre-test date by post-test date for post-tested students. 17 students who took the post-test are missing all pre-test data. Numbers in parentheses represent column totals when taken without accounting for missing pre-tests. Crosstabs for students pre-tested as "entering" and "continuing" are given separately in Tables III-1B and 1C.

Count PRE-TEST DATE	POST-TEST DATE 5/89	1/90	5/90	Row Total
5/88	60	14	7	81
9/88	120	24	10	154
5/89	1	25	7	31
9/89			78	78
Column Total	180(190)*	63(64)*	102(108)*	345(362)*

Number of Missing Observations: 17

*Note: Numbers in parentheses are column totals ignoring missing values.

Table III-1B

For "Continuing" Students: Those Who had Attended Alternative High for Several Months Before Taking a Pre-Test.

Count	POST-TEST DATE			
PRE-TEST DATE	5/89	1/90	5/90	Row Total
5/88	60	14	7	81
5/89		9	4	13
9/89			20	20
Column Total	60	23	31	114

Table III-1C

For "Entering" Students: Those Who Were New To The School When Pre-tested.

Count PRE-TEST DATE	POST-TEST DATE 5/89	1/90	5/90	Row Total
9/88	120	24	10	154
5/89		16	3	19
9/89			58	58
Column Total	121	40	71	231

Number of Missing Observations: 17

Chapter IV: Alternative High School[*]

Mission and Purpose

Alternative High School, established in 1971 as part of the network of alternative high schools in New York City, has approximately 180 students and 14 teachers, including a site coordinator, at each of its four campuses. People under the age of 19 years living anywhere in New York City may apply to any campus of the school. Graduates receive a regular New York State high school diploma.

The school was created to serve older students who needed a school environment that both respected their maturity and supported them in moving into adulthood and the world of work. Under the auspices of private funding from 1971 to 1975, AHS helped students to take control of their lives in an environment where they shared in making decisions about the content and organization of their education.

In the 1975-76 academic year, AHS became a publicly funded school under the New York City Board of Education. Its population changed somewhat. Candidates for admission increasingly became those students who needed more structure and support than the traditional high schools offered. They had more serious behavior problems and academic problems and they were less mature than previous students. Thus, in recent years the school has had to add more remedial and counseling services while attempting to maintain its admirable mission.

The main tenets of the school's philosophy are school-based management, shared decision-making, teacher empowerment, and student empowerment. The fact that most of the students have dropped out of another school requires the mission of this school to become a broader one to include increasing self-esteem, lessening the "at risk" status of its target population, and developing intellectual potential. The shared operating assumption of the faculty is that students will learn best when they are in a calm, informal environment in which they are respected and are actively engaged in their education. The staff works within a holistic framework that encourages students to question and assess their knowledge and experiences.

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[*] This chapter was prepared by Vernay Mitchell.

The philosophy is observable in several dimensions -- in the way students and teachers participate together in governing the school, in the use of first names between students and teachers, and in the role of teachers as participants in policy making. The empowerment model can be seen in the curriculum and instructional practices of the school. The goals in these areas include developing skills, perceptions, literacy, cultural literacy, and a sense of history. There are courses with names that demonstrate their social relevance for this population of students. Examples are Harlem Renaissance, Twentieth Century in Crisis, and Immigration. Included in classroom discussions are such controversial issues as racism and oppression as well as more common concepts in social education such as civics and democratic ideology. This curriculum is an attempt to relate the students' schooling experiences to the historical and social issues relevant to their lives. It is empowering because it makes them more resourceful in dealing with people and situations.

The more affective side of the mission at Alternative High School includes the notion of instilling in this population of students, who for whatever reasons have not made it in more traditional high schools, a sense of self worth which must work in conjunction with empowerment. The staff tries to make AHS a place that will help these young people change some of the wretched social realities that plague urban areas and the lives of the poor. The transformation of these realities in such a complex social environment as the one in which these students live requires special skills and sensitivities. This, we believe, is part of the reason AHS was receptive to training in cooperative learning and conflict resolution.

Student Population

There are several channels for admission to Alternative High School. Students who have already dropped out or are at risk of dropping out of another school apply, on a voluntary basis, for admission to AHS. Others are referred by counselors in their high schools or by the court system. Many of these young people are not mature enough to handle the social activity, fast pace, and bureaucratic structure of the traditional school. The belief is that, in a smaller environment which offers more individualized attention, these students will be more capable of focusing on the goal of earning a diploma. Thus, many of these students come to Alternative High School as a place to "settle down" and focus, or to get serious about school.

Increasingly, AHS students come from unstable, disoriented homes, in which there is little expectation concerning school. The number of counselors and special educators at each site has increased to serve the students better. However, many of the students come from stable homes with working parents who do have high educational goals and expectations for their children. Yet, the intense pressure of the large comprehensive high school and the numerous cracks through which students can slip may not allow the immature, undisciplined student enough support regardless of the home situation. In some cases, students, out of a commitment to academic success, may realize that they are too susceptible to peer pressure and want to "get away from their friends" into an environment where it will be easier to focus on school work.

Applicants are enrolled at Alternative High School after successful completion of an application, a screening interview, and a favorable vote by people at the specific campus to which they have applied. This intake process involves students, faculty, staff, and administrators as part of a model of shared decision-making. During the interview, applicants are asked to give specific details of why they left, or want to leave, their previous school, what they have done since leaving (if applicable), and why they want to attend AHS. They must convince the screening panel that they are committed to getting a diploma while complying with the rules of the school.

Having attended other high schools in the past, new students enter AHS with a variety of credit profiles. As a general rule, the school accepts students with 20 or more credits. Exceptions are made for some students who have fewer than 20 credits but have strong recommendations from their previous school. Others are accepted with fewer credits if they make a strong appeal that convinces the screening panel of their sincerity in wanting to finish high school.

The skill levels of applicants span a broad range of scholarship and their attendance records are usually poor. Consequently, the number of high school credits a student has earned, combined with his or her age, is a factor in the admissions decision. For instance, a student who applies to AHS at age 18, with three-fourths of her credits earned, is a more likely candidate for admission than is an 18 year old with three-fourths of her credits yet to complete. The decision to select students is also influenced by the school's desire not to become a hang-out for over-aged students with no commitment to completion. An assessment must be made as to whether it is in the student's interest to make a two or three year commitment if that is what is necessary.

After enrolling, every student is assigned to an advisor and a student group. The advisor leads the group in discussions of academic progress, personal concerns, and school issues. Members of the group remain together for the duration of their enrollment and serve as added support for each other.

The demographic portrait of the student population at AHS at the beginning of the project was the following:[1]

- they were predominantly minority group members -- African American (56.9%), Hispanic (40.5%), white (2.2%), Asian (0.4%), and Native American (0.1%);
- 5.1% of the students had limited English proficiency;
- they were about equally divided between females and males (50.5% and 49.5% respectively);
- about one third of the females were teen parents;
- the average age was 17 years;
- a slight majority came from disadvantaged households (51.6% were eligible for free or reduced price lunch);
- an increasing number came from families with high risk factors such as drug abuse and homelessness;

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[1] This statistical data is partially taken from Aggregate School Profile and Performance in Relation to Minimum Standards. (Fall, 1990). Published by the New York City Public Schools. Figures from academic year 1988-89 are used; this was the year the training began.

- the average number of prior high school credits was 20;
- the achievement rate was well below that of other New York City High Schools (at Alternative High School 44.4% of the students were eligible for Chapter 1 services, indicating that they were well below the appropriate achievement level for their age, whereas the range for the average number of Chapter 1 eligible students at regular high schools was 25.4%-30.4%);
- they continued to achieve below minimum standards at Alternative High School (student academic performance at the school, as measured by the state-wide Regents Competency Tests [RCTs], consistently fell below the minimum standards set by the Office of the Chancellor of the New York City Public Schools in reading, writing and math);[2]
- those who had dropped out had been out of school from six months to seven years;
- 40% of those who enrolled would graduate (the average period of enrollment for graduates was 1.5 years); 30% of those who enrolled would dropout ; 15% of enrollees would transfer to other schools or programs.[3]

Despite their high risk status and their previous school careers, some of these students have the potential to succeed in higher education. However, attending Alternative High School is sometimes a liability to them in the college application process. One student told how she had to "lobby" for acceptance, convincing colleges that the courses she took were equal to courses in other schools which have facilities such as science laboratories. She said:

> I am having trouble doing that since I want to go to a private college. It's a little bit easier if you apply to one of the city colleges or in the state university system. The colleges demand a biology requirement. I'm trying to tell them that a course in ecology at [Alternative High School] is the same as biology.

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[2] There was a considerable increase in the number of students who met minimal standards in reading during their senior year. The 12th graders did approach the minimum (90%) level of passing by showing an 87.7% passing rate. In math and writing, they continued to fall short of the minimum.

[3] The remaining 15% are unaccounted for by our sources.

The affective climate created by the students at AHS was described by our observers at various times as "street-wise," "disorderly," and "tough, but not pushy." The many handshakes, hugs, and verbal greetings seen in the halls and the cafeterias show how much the students enjoy socializing with each other.

Newly enrolled students at all three sites perceive the school as being different than the previous high school they attended. The differences are positive -- they feel that teachers and students are more tolerant and friendly. One student described it this way: "There is less fighting here. . . at my last school, students would think you were afraid if you didn't fight, but here it's not like that." Another student said that "it's a more controllable environment here since it is smaller."

Other student comments about the climate were more worrisome. For example, one female student maintained that some students take advantage of the strict policy against fighting by verbally provoking others. They know students are hesitant to retaliate physically for fear of being expelled. These instigators deliver quiet verbal messages anticipating loud or physical outbursts from the targets of their provocation.

Many students feel that fighting is necessary when situations with adversaries become difficult to handle, but there is evidence that suggests students equate non-violent solutions with maturity. In an interview during the first year of the project, a student illustrated this association this way: "When I was younger I fought a lot, but now I'm more mature and if I can talk a problem out, I feel more like an adult."

Faculty and Staff

The Principal of Alternative High School works out of a central office. Each campus has a coordinator who oversees daily management of one site. Two of the coordinators (at Campuses B and C) teach academic classes at their sites.

The number of faculty members at each site varied between 14 and 18 during the years of the project. Other staff members include administrative assistants (one each at Campuses B and C and a student intern who does clerical work at Campus A); paraprofessionals (two at each site); and various types of counselors, who generally are not full-time personnel.

The faculty of AHS is predominantly white (72.2%). Minority faculty consist of African Americans (20.4%) and Hispanic Americans (7.4%). Of the campuses we studied, Campus C had the highest number of minority teachers; out of 13 teachers four were African American and one was Hispanic. Campus A had three minority group teachers, an African American and two Hispanic teachers. Campus B had no minorities as teachers, but did have them in other positions. Out of three African American staff members at Campus B, one was an administrative assistant and the others were paraprofessionals. Campus C had two African American paraprofessionals.

It was clear that the faculty was concerned about the minority students having chances to interact with adult professionals of minority ethnic groups. Eight African American professionals were invited to speak to the students for Career Day. The faculty devised activities and lessons to assure that the cultural values of African Americans and Hispanic Americans were affirmed in school experiences. Teachers at Campuses B and C openly expressed concern that the underlying philosophy of our training may not be compatible with what the students were experiencing in their lives outside of school, i.e., working together in cooperative groups may be a middle class value not applicable to their situations and violence may be necessary and effective under some circumstances. Our trainers (two white females and one African American female) were consistently aware of these concerns and assured the faculty that the training would help students distinguish between conflict situations that can be resolved with the methods taught in our interventions and those that cannot.

The faculty at Campus A was pleased that an African American trainer was assigned there for the conflict resolution training. This trainer was able to work with the students as an insider who shared their cultural experiences. She worked with teachers to increase their cross-cultural perspectives on conflict and its resolution.

Another way the faculty showed sensitivity to the needs of minority students was to assist the African American staff in roles of leadership and counselling. At Campus B, the African

American administrative assistant was called upon in many instances to counsel students and be an advocate for them. At Campus C, the African American paraprofessional was called upon to counsel students when other faculty thought it could be done best by an African American male. The paraprofessional even extended his involvement with the students to activities outside the school. Our observer recorded it this way:

> A few weekends ago [the paraprofessional] and 4 students from this campus took a field trip to Albany. They attended a special session at the Martin Luther King Institute for Nonviolence. The students came back enthusiastic because the conference addressed the issues of conflict and conflict resolution for them.

Teachers at other sites demonstrated the same type of caring and selflessness in reference to the students. One researcher observed:

> This is the third time this morning I saw teachers volunteer to use their money to support the students. [A teacher] used her money to pay for some of the decorations, [another teacher] volunteered to take students to breakfast, and now [another teacher] is volunteering to take them to dinner.

Caring about students' academic and social progress is evident in the discussions and conversations among staff members. On various occasions our researchers recorded these observations:

> One teacher was there [sitting around the table]. She is the resource room teacher. I had met her before . . . On three occasions while I was in the office she asked other teachers about the progress or status of a student. As the teachers responded she said "ok" as if she were taking note of the responses. This may be an indication of good integration between regular subjects and special subjects or at least good efforts by teachers to share information on students. [Campus C; 10/25/89]

> . . . teachers seemed to be personally and individually involved in the students' lives. . . The teachers were often heard discussing students who were absent, and showed genuine concern for their students. . . several teachers shared with me their worry and concern when a girl student left school and was felt to be suicidal. [Campus A; 05/22/89]

> [three teachers who were team teaching] talked about how well that class went today and how good they felt about the progress the students were making. [Campus B; 03/26/90]

Most teachers also function in the role of academic and personal advisor to a small group of students (called Family Group at Campuses B and C and Strategy Group, or "Strats," at Campus A). These groups of one staff member and 10-16 students met at least two hours per week, more at some campuses. Other specialized counselors from programs such as SPARK are available for the students.[4] As the project proceeded, more counselors, special educators, and social service personnel were added at Campuses A and B to help with the more troubled population of students that was enrolling.

Interviews with staff indicated that they believed the incidence of conflict in the lives of the newer students was higher than in the lives of previous students. However, administrators stated that the number of incidents of conflict and/or violence within the school remained the same.

Policymaking

School-wide policies are set by a management team composed of the coordinators from each site, the principal, and the assistant principal. Decision-making by this group is by consensus. The administrators of AHS pride themselves on being pioneers in this model of school-based management which many other schools are just beginning to consider.

Site policies and local decisions at each campus are made by the coordinator and faculty. Students at each site have input into many decisions, including acceptance of new students and judgments about student discipline, through a student government structure known as CORE. They also help to evaluate courses such as the orientation class. Hiring of faculty is a responsibility handled at the campus level.

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[4] SPARK is a drug and alcohol abuse program in many New York City schools. The goals are to prevent substance abuse among students and to intervene in the lives of student substance abusers with support and counseling.

One of the strictest school-wide rules is the one concerning fighting. The policy is that any student who provokes a physical fight is expelled and not readmitted to any campus of AHS. The person who responds physically to a provocation is expelled or gets transferred to another campus, depending on what extenuating circumstances exist and if the student acted to avoid the fight. For this type of serious offense, an appeal is allowed if there is new evidence to present. Decisions in these cases are made by the student government body, CORE, and a group of teachers.

Organization of Curriculum and Instruction

Since Alternative High School awards the high school diploma of the New York State Board of Regents, it is bound to the regulations of this board. Students must accumulate 40 credits in specified areas of study (two credits equal one unit of study; a unit of study is earned by attending class for one-half of the school year).[5]

The required subjects are English (8 credits); Social Studies (8 credits); Science (4 credits); Mathematics (4 credits); Humanities (4 credits); Health and Physical Education (1 credit). The remaining 11 credits must be spread between electives and a concentration in a subject the student designates as a "major." Receipt of a diploma requires testing at a minimum level of competence on state-wide tests in mathematics, science, global history, American history, and in the major subject.

At Alternative High School the year is divided into four ten-week cycles. During each cycle, students earn about 4 credits toward graduation, allowing them to earn about 16 credits per year (other New York City High Schools are not divided into cycles; they have two terms per year, allowing students to earn about 12 credits per year).

The small enrollment (about 180 students at each campus) allows for a well-integrated organization of courses. There are no academic departments; each faculty member teaches one or two subjects. When many students need credit in one subject area, the running time for a course may be changed from a single period to a double period, or the course may become one that runs for two-cycles and carries extra credit. This allows one instructor to work with the same group of students in the same subject for twice the amount of time as regular courses. The instructor has chances to try a variety of instructional strategies which will aid students who may have never before achieved well in the subject area.

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[5] This specification of requirements is partially taken from The 1990-91 Directory of the Public High Schools, issued by the New York City Board of Education, Division of High Schools.

Occupational Education

One aspect of the instructional organization that was of special interest in our research was the area known as Occupational Education or Careers. Our research interest in this area originates from the linkages we see between learning the skills of cooperative work and of conflict resolution and success in the workplace. Literature in this area points to the importance of being able to work with others -- understanding them and learning from them. These needs in occupational education are especially congruent with the underlying principles of conflict resolution and cooperative learning. The skills we taught in the conflict resolution training (especially active listening, differentiating between positions and needs, and distinguishing among different types of conflict situations) are ones that directly address the interpersonal environment students face in their internships and later in their more permanent employment. The cooperative learning model we used encourages the responsibility for individual and group learning that is needed for one to function and progress in work environments. Therefore, students' preparation for work and their experience of working became important foci in our project at AHS.

Career guidance and work experience have been integral parts of the curriculum at Alternative High School since its inception. Originally, the official name of the school included its designation as a career school. Currently, many students who graduate go on to higher educational and training programs before beginning a career, but all of the campuses include Career Education as one of the areas in which students can major.

The school has a variance from the state regulations for career education majors. Since the school is too small to provide the whole sequence of required courses, the students who major in this area only take two occupational education courses: Working Citizen and Personal Resource Management. They receive four credits in the area of Occupational Education from completing two cycles of part-time internship. Students majoring in other areas may select the Occupational Education courses and the internship as electives.

Personal Resource Management consists of the following two components: (1) ways to handle personal resources and (2) decision-making, goal setting, budgeting, and time management. When time permits, the students also learn to balance a checkbook and to understand the insurance industry. The Working Citizen course has social and economic components which deal with the work place in general and the individual's role as a working person in society.

Two of the work settings used for internships were common to all three campuses. They were the Intergenerational Program and the Executive Internship. The Intergenerational Program was conceived by the New York City Department for the Aging as a way to break down the myths adolescents have about senior citizens and those the seniors have about adolescents. The student interns work with senior citizens approximately 15 hour per week helping them shop, do household chores, and participate in leisure time activities. The pay is approximately four dollars per hour.

The Executive Internship is a program of part-time jobs in many different types of work settings. A liaison works with the internship coordinator in the school so that, whenever possible, student interns are placed in settings that reflect their occupational interests. Most of the placements are in business offices. These settings are more formal than in the Intergenerational Program and some pay more than the minimum wage. For these and other reasons, they are preferred by the students. One researcher recorded this illustrative example while observing student interns:

> [The student] said she will be an intern again next year, but she wants a different site, not a site where she works with senior citizens. . . The two interns compared their internship with others at [Campus C]. They said the hard thing about their's was that they went to the community center and then they had to travel again to get

> to the senior citizen's house. They didn't like that, especially when it was cold or rainy. Whereas other students who worked in offices got to stay in a warm office and do their work. . . Another aspect they liked about office work was that it gets out at the same time every day; that helps to facilitate their planning for after school activities. Both of them said working in offices is better for an internship.

Campuses B and C also use the School of Cooperative and Technical Education as a placement for interns. This is a public, career-oriented high school rather than a worksite. A variety of technical skills are taught and students are encouraged to take tests in their skill area and apply for membership in appropriate labor unions. Although it is not a place where students get experience in the world of work, the site is a particularly appropriate one for Alternative High School students. The school was developed to address the fact that certain categories of people are often excluded from skilled technical jobs. The school concentrates on training people from these categories. They are minority ethnic groups, women, people not proficient in English, the disabled, and those with mediocre academic and attendance records.

Campus A uses the Educational Video Center as an internship site. Here, the interns receive credit, but no pay, as they learn video production. Each student produces a videotape on a topic of his or her choosing.

The time-in-the-field and high school credit allocations for these internships were changing as the project took place. Generally, students majoring in Occupational Education completed two cycles of part-time internship for two credits per cycle. An option was to take a full-time internship and earn the four credits in one cycle. Internship credits were generally given in occupational studies, but a new ruling allowed these credits to be given in the social studies area.

Part of our research efforts were directed at making links between our training and student performance in internships and their career knowledge and aspirations. The qualitative research techniques directed at vocational factors included interviewing internship coordinators at the school and work supervisors at the worksites, observing occupational education classes, and observing student interns at their worksites. Summaries of observations at the internship sites are presented in Chapter VI. Findings related to occupational education are reported below in the descriptions of the individual campuses.

Comparison of Sites

The three campuses of Alternative High School that participated in the project have common elements in their mission, student population, and instructional goals. They also share the experience of being located in inadequate buildings which lack necessities and amenities, such as laboratories and athletic facilities, that are commonly found in many suburban schools and urban schools that were built for contemporary educational programs. But each campus also has some unique features that are critical to an understanding of how the project was received. The description below presents the campuses in terms of several physical and organizational features.

Campus A

Campus A is located on one floor of a Manhattan office building that has a view of the City Hall of New York City. The central office of AHS is in another section of the floor.

The main area, outside the coordinator's office, is where many students and teachers congregate before and between classes. Flyers of interest to teachers clutter the bulletin boards. Reading materials for teachers and students are available on tables. Literature that focuses on minority populations, such as Jet magazine, and news periodicals, such as Time magazine, are available.

The displays on bulletin boards in the halls are interesting aspects of the climate at Campus A. One has a list of honor roll students and another, called a "merit board," lists students who have shown considerable improvement. A third board, entitled "Policies," has photographs on it showing different school rules that are to be observed. One example showed a photograph of a student or staff member with a cigarette in his mouth. Under the photograph was the caption, "no smoking." A large open room is used as a lounge and cafeteria. The walls of this room have drawings on them painted by students in graffiti-style art.

Other bulletin boards at this site held posters from institutions and programs the students can attend after high school. Some were occupational training sites, such as a school for chefs. Others were colleges such as Barnard College, NYU, and SUNY, Binghamton.

The library is small and uses an honor system for taking and returning books. This is one example of what the students refer to as the free atmosphere at this site. They said, "Students are free to do what they want as long as they learn. . . there are not a lot of people telling them what to do here."

At this site, where the student advisement groups are called Strategy Groups, or "Strats," the process of accepting students into the school is delegated to one "Strat" group on a revolving basis. The students in the designated "Strat" interview prospective students to find out how much the person wants to attend the school and why. These students report that they try to judge the maturity of the person since, in their opinion, immature students are the ones who always drop out of Alternative High School. They want only people who are serious about graduating. These students make it clear that getting a regular high school diploma is more desirable than getting a GED. Students who are accepted and enroll attend an orientation class each day during their first cycle at the school. The orientation class is co-taught by two teachers.

In addition to the core curriculum, extracurricular activities challenge and inspire the students at Campus A. One is a "store." Students do the planning and buying for this enterprise, which sells snacks and t-shirts decorated with the school name. The proceeds are for class trips such as the annual trip to Washington, DC in the Spring.

The teacher of the occupational education courses at Campus A matches students to internships and acts as a liaison between the worksite and the school. This teacher also counsels students in job-seeking skills such as filling out applications, writing resumes, and presenting oneself in an interview.

Most of the internship students at this site take the Executive Internship. A few go to the Educational Video Center and ten to twelve students are usually in the Intergenerational Program.

There is also one internship position at Campus A to work in the office as a full-time secretary to the coordinator.

A number of school factors at Campus A contributed to the need for conflict resolution and mediation. As the project progressed, administrators and teachers noticed a different type of student enrolling. Increasingly, the students were more needy in terms of social services. More of the students were bothered and angered by problems unrelated to school. The coordinator had this to say about the situation:

> The anger these kids have is not especially related to school, but the school environment exacerbates it because of the close proximity. . . their natural instinct to just get away from the situation is inhibited. . . It has forced us to say which of the students' problems can't we do anything about. Is it a school-related problem or is it an out-of-school problem? The first training session in 1988 helped to bring this about. That is why we were so desirous of the conflict resolution training. . . There are many more social problems and health problems. . . The families of these kids are being ravaged by drugs. A lot of their parents are very young and don't know what to do with the kids. . . There is a whole generational shift that has to do with the use of drugs and health problems such as AIDS. . . To remedy some of this we have more counseling and therapy.

During the second year of the training project, CORE -- the student government group -- had difficulty getting continuing students to be members of this group. The requirements for membership were that the students must be in good academic standing and act as role models to others. There were not enough volunteers so new students were appointed to CORE for the first time. That created a conflict with some of the continuing students. Although they did not volunteer, they thought it was unfair to have new students have such power in governing the school. This situation constituted a conflict within the major conflict-resolving group in the school. This made the setting ripe for a training intervention specializing in mediation and conflict resolution.

Campus B

Campus B is located on the second floor of a school building in a run-down area of Manhattan which has a high incidence of crime. It shares the building with other Board of Education offices and a day care facility. The classrooms are large with movable furniture that facilitates rearrangements more conducive to cooperative group work.

The main office is hectic with students and staff actively engaged. It is the main hub of the school where the administrative assistant makes a major contribution to the organization and climate of the site. The lounge areas contain many reading materials, especially ones that concern careers and college entrance information. Bulletin boards in the halls display student art work and some job openings for after-school employment. One bulletin board displays the attendance record for each Family Group.

A cafeteria and a large recreation room are on the first floor. The large room is used both as an auditorium and a gymnasium. Students must carry chairs to it from their second floor classrooms. Some of the special events given by the students at Campus B are attended by the staff and children from the day care center in the same building.

The instructional staff at this site are a very cohesive group even though, during the training project, there was quite a bit of staff turnover. The staff was vibrant and very active with many studying for doctoral degrees. They believe strongly in the philosophy of Alternative High School and are protective of their students. They want to make certain that all programs introduced in the school are appropriate and the best they can be. The coordinator described the faculty this way:

> Many on the staff are working on their Ph.D.s. . . my staff always wants to debate. They are very aware and they are not passive. . . alternative schools attract a particular kind of teacher. The run-of-the-mill teacher won't apply. The kind of teacher here has to be demanding and involved.

Even the extracurricular activities at this site reflect the philosophy of empowerment and humanism. For example, one group of students sponsored a project that focused on building a caring community. The activities included a Toys for Tots campaign and a fundraising drive for the organization Students Against Drunk Driving (SADD).

The Inquiry Project has existed for several years at Campus B. It involves a group of teachers exploring the nature of inquiry. They try to improve their questioning techniques and devise ways to inspire students to ask more meaningful questions. These teachers sometimes present the group with difficulties they are having with the inquiry process and the group gives advice.

The career coordinator at Campus B is a paraprofessional who supervises the students' internships and informs them about after-school job openings. Student interns at Campus B are in internships with the Intergenerational Program, a similar agency called the Village Visiting Service, the School of Cooperative and Technical Education, and the Executive Internship.

Some student interns have poor attendance in places where the job is boring to them or they do not get along with the supervisor. The impression of the career coordinator is that most of the internship agencies care for the students and want the best for them, but many times she must intercede to mediate a conflict situation between the student and someone at the worksite. Training in cooperation and conflict resolution is particularly salient here since these students lack the skills necessary to resolve common conflicts in the workplace.

At Campus B, the concepts of empowerment and consensus are strong. Faculty members stress cooperation and harmony among individuals and groups at the same time that they urge students (and each other) to express opinions firmly and to question information vigorously. The combination of these approaches in the teaching/learning environment of Campus B led the faculty to desire a training approach that combined conflict resolution with cooperative learning.

Campus C

The location of Campus C is on the second and third floors of a school building in Queens -- a part of New York City well outside the inner core. It is a busy commercial district where traffic noise is very readily heard in the school office and in all the rooms on one side of the building. The rooms allotted to Campus C are barely adequate in number. During the project, the school acquired additional space in the building to alleviate overcrowding.

The cafeteria is a large room with a television and video cassette recorder stored there. Several walls are covered with art work which was done by a student who graduated from this site and is now a professional artist. There is also a large auditorium where Campus C holds special events.

As at the other sites, students here feel that this school is quite different from schools they attended previously. One female student at Campus C said:

> . . . the teachers really relate to you here, unlike at regular high schools. The students are able to do more on their own. They are able to propose things and get them done rather than the staff just telling everybody what to do. . . [events] like the talent show are done by the students. Students are able to voice their opinions just like you are able to voice your opinion in the ballot box.

The student government body at this site, CORE, is made up of one representative from each of the 12 Family Groups. In addition to making recommendations to the faculty, CORE members interview candidates for admission. The prospective students visit the school for an entire day to see the facility and for CORE members to evaluate them. Each prospective student is ranked on a scale from 1 to 10. Later, students who are not accepted may find out the reason. Some who missed acceptance by a few points are encouraged to apply to another site of Alternative High School.

Of the three campuses we studied, Campus C has the population with the least amount of social and academic problems. Because of its location outside the core of the city, these students are less needy, come from more stable homes, and are less exposed to the high concentration of social ills than students at the other sites. This does not mean that some of them do not have daily experiences with risk factors like crime, drug abuse, teen parenthood, and poverty.

The climate at this campus can be described as "comfortably controlled." There is a sense of give and take among teachers and between teachers and students, yet there is more of a traditional administrative presence in the way the coordinator oversees the school. He encourages individuals to come to him for critical decisions and solutions. We observed less consensual behavior, especially where student discipline is concerned. The empowerment philosophy was less evident here than at the other two campuses. One observer said, "I never really got the sense of any consistent set of beliefs about learning, school environment, or school structure which is shared by any great number of people."

Students at Campus C may major in math, science, or occupational education. Teachers and counselors are increasingly urging students to major in math or science and continue on to higher education. A College Discovery Program at this site is coordinated by a teacher who is very popular with the students. The program helps students with career decisions, college applications, and related matters.

Occasionally there is enough interest to have extracurricular activities such as softball, bowling, or drama. During the second year of the training project at this site, there was an artist-in-residence in the school who taught lessons in several areas of the humanities.

The paraprofessional who coordinates the internship program at Campus C interviews prospective interns and matches them with worksites. He also co-teaches the Occupational Education courses. Occupational Education majors must complete two cycles of part-time internship or one cycle of full-time internship. If they select clerical skills as a specialization, they are usually assigned to several different clerical settings in their internships to help them learn a variety of tasks in several environments. This also helps them to become embedded in an occupational network that may lead to future employment. Math and science majors may take occupational education courses or do an internship for elective credit.

The placements for internships at Campus C are the Intergenerational Program and the School of Cooperative and Technical Education. The staff has independent contacts with several merchants and organizations that have worked with the school before. From time to time when they have job openings they call for an intern. Also, if a student already has a job, it may be considered as the student's internship if this can be negotiated with the job site and if the job provides the type of hands-on experience and skills that may help the student in future employment.

There have been occasions at this campus when some students who were on full-time internships felt isolated from the school. The students felt that they were supposed to be going to school but found themselves going to the workplace. The internship coordinator felt that immaturity and lack of experience were operant factors in these cases. Now, part-time internships are recommended for most students so they can continue to feel they are part of the school.

Students from Campus C have worked well in most of their placements. One where problems arose was a site where students worked with homebound older people. Laundering clothing for the homebound people was opposed by the students. They referred to this as domestic work which they would not do. The demographics of the situation exacerbated the controversy since most of the people being served were white and all of the interns were minority group students. Some students likened this to conditions in the era of slavery. Others questioned whether doing such an unsanitary task could actually be asked of them.

A temporary agreement was reached after much discussion and negotiation between the internship coordinator at the school and the workplace supervisor. The amount of laundry the students had to do would be limited and the workplace would issue rubber gloves for the students to use for this task.

This example of difficulties and dilemmas encountered in the workplace illustrates the usefulness of the skills taught in the cooperative learning training at this site. As mentioned above, young people need to develop skills to employ in such situations. This includes negotiation skills as well as cooperative skills, both of which were part of the cooperative learning training.

The implementation of training at Campus C presented the staff with a myriad of suggestions and activities that would help them teach students to work and learn with other people. The elements of face-to-face interaction, perspective taking, and group processing found in the Johnson model of cooperative learning were especially useful for problems in the workplace.

From this description of Alternative High School in general, and the three sites in particular, it can be understood that the school is an institution with one central mission that is implemented in different ways at different sites. There are contrasts in the way decisions are made and carried out and in the ways staff members react to their empowerment. The faculties at Campuses A and B were found to be more openly assertive. There was less of a hierarchy in the relationships among the coordinators, the teachers, and the support staff than at Campus C.

There were also notable contrasts concerning the students and the school outcomes. Campuses A and B enroll a more high risk, inner city population, many of whom lack a social support system and adequate academic preparation. Campus C has a population with fewer social and academic ills. Yet, the highest percent of graduates is at Campus B (52% as compared to 30% and 40% for Campuses A and C, respectively).[6] Campus B also has the lowest dropout rate (25% as compared to 33% and 30% for Campuses A and C, respectively).

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[6] Percentages are for the period September, 1986 through March, 1988.

Chapter V: The Implementation of Training*

Staff from the ICCCR and a teacher from AHS (who later became an Assistant Principal of AHS) met during the summer of 1988 to plan the initial training workshops. This was an informative period for the ICCCR staff as they learned more about the philosophy and organization of the school. The training was first conducted with the AHS staff from all three sites during a five day workshop held from August 28 to September 2, 1988. Teachers were paid for attending with funds from the Board of Education.

The faculties of Campuses A and B received three days of training in conflict resolution. The faculties of Campuses B and C attended a two day workshop on cooperative learning. Every effort was made to schedule the training at a mutually convenient time, but some staff members (6 teachers and 2 paraprofessionals) had prior plans to take vacations at the time that was chosen for training. A total of 35 staff members participated including the principal, the assistant principal, all 3 coordinators, 27 teachers, and 3 paraprofessionals.

Regular training at each site began in September of the 1988-89 academic year. The plan was to have a trainer at each site for two days per week -- one day would be for conducting a workshop and the other for doing staff development with individual teachers. The trainer for conflict resolution was hired. She and the Training Director began conducting training at Campuses A and B in September. The commencement of the cooperative learning training was postponed due to union difficulties. The New York City Teachers Union insisted that a union trainer be used for the training in cooperative learning. Three months passed while attempts were made to make these arrangements. In the end, the trainer that was certified by the union was unavailable to travel to the Campus C site where cooperative learning training was to be conducted.

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* This chapter was prepared by Vernay Mitchell.

While a trainer was being sought by the ICCCR, two staff members did a session of "warm-up" exercises at Campus C in October, 1988. The session was attended by 12 teachers who listened with interest to information about the theoretical background for the Johnsons' approach to cooperative learning. Their questions indicated that they were looking to apply what they were hearing to their classroom situations. When a trainer was found, she visited the site once in December and began training in January, 1989.

Details of the contents and implementation strategies of the training at each site are presented below as are the backgrounds and qualifications of the trainers.

Training at Campus A

The Trainer

Karen (a pseudonym), the trainer assigned to Campus A, has a degree in criminal justice and has worked in New York City for several human service agencies including Legal Aid, Victim Services, and the central booking office of the Criminal Justice System. She has participated in the resolution of conflict in many settings.

When she was a counselor for victims of crime, Karen began to focus her career on mediation. Often she had to sit between the perpetrator and the victim to mediate out-of-court settlements. After five years, Karen changed employment to become the director of a mediation center. In this setting she did what she describes as "the most difficult mediation that you will ever do -- mediating disputes between parents and their children." Karen was responsible for administering the center, conducting mediation, and training mediators.

During several of her jobs Karen worked with the person who would come to be the Training Director of the ICCCR project. When the need arose for a conflict resolution trainer for Alternative High School, Karen was contacted and hired.

Karen attributes her ability to form good working relationships with those whom she trains to the fact that she reveals her humanity to them. This is in opposition to an approach in which clear lines of distinction are maintained between trainers and those they train. She said:

> I can just give them my own real life experiences. I mean, I come in and tell them problems I have, how I try to work them out, how it doesn't always work. . . partially they're amused by that and the other side of it that [they see] this is a human being. Also, there's something about that first name basis that really gives it a human touch....

Karen worked for the site not only in her formal capacity as a trainer, but also more informally as a mediator of disputes and as a counselor for students when school staff thought her expertise was needed. She also described her role as sometimes being an "ear for the teachers" and a problem-solver. They told her of problems they had with students and asked her advice about what to do with the students and what to say to the parents.

She attributes her widespread acceptance at Campus A to her willingness to go beyond the call of duty. In her words:

> . . . you can't go and just be a conflict resolution teacher. You have to be a part of the staff. You have to be a part of the school, and this acceptance means I'm part of the school.

Karen seemed to work equally well with people in many roles. When a mediation program was developed, she and the coordinator collaborated to develop the rationale for the program. She was instrumental in informing the teachers and infusing their input into the plans. She also worked well with students as she trained them in techniques of mediation. By having direct contact with people at all levels, she solidified her role and enhanced the project.

Academic Year 1988-89

In the Fall of 1988, Karen and the Training Director worked together at Campus A one day per week. The Training Director worked exclusively with teachers while Karen worked with both teachers and students. After-school conflict resolution workshops for teachers were augmented with staff development sessions at the request of individual teachers. Much of the staff development focused on how to use conflict resolution with students in orientation classes, "Strat" groups, Occupational Education classes, and CORE. Violence prevention was taught throughout the year in "Strat" groups with Karen starting the instruction and the teachers doing follow-up lessons.

One technique employed quite often in all of the workshops and classes was role-playing. Students enjoyed having the chance to create and respond to situations they encountered at home and in the work place; for example, in one orientation class they created a hypothetical conflict between two gang leaders and generated ideas for non-violent solutions. Also, the training was applied to their internships or employment. They performed role-playing situations in which they identified the needs and positions of their supervisors and other people they worked with and thought of ways to handle disagreements and conflicts in the work place. Students at this site remarked to one trainer that role-playing was the best way to learn the skills.

Although the relationships between the trainers and the staff at Campus A remained cordial, the trainers felt that the teachers' commitment to the training was incomplete. The faculty welcomed the additional time Karen offered to give to the site, especially when she increased the time she was giving to the students, but they vacillated about participating in training for teachers. Karen said in retrospect:

> . . . teachers wanted me to train everybody. They would sit down and I would do all of the work [with students], which is okay the first year when they are just beginning. . . we would try and train [teachers] during designated times after school. We found out. . . nobody is interested in learning a damn thing. . . some of the information is hard to internalize, it's hard to digest, you might not get it and. . . teachers have a hard time being embarrassed and making mistakes in front of their colleagues. . . .

By the Spring of 1989, the trainers sensed lingering frustration among some of the teachers. During one training session the discussion centered around how tired everyone was. The workshop format ended and the approach shifted to direct training of students supplemented by staff development sessions for teachers by their request. The faculty responded positively to this change and increasingly wanted Karen to visit and participate in their classes, while the Training Director kept giving them staff development on request.

Since most of the staff had participated in most of the 14 workshops (the attendance at the workshops ranged from 11-14), teachers were able, by the end of the year, to introduce the fundamentals of conflict resolution to the students and follow up on lessons that Karen had presented.

Thus, for year one at Campus A the training involvement can be described as beginning with a successful entry in which good rapport was developed. Fourteen two-hour conflict resolution workshops were held for teachers and numerous classroom sessions were conducted where the students were trained directly. Students and teachers gained a beginning knowledge of violence prevention,[1] negotiable and non-negotiable conflict, needs vs. positions, "I" messages, active listening, paraphrasing,[2] and the AEIOU learning device.[3] Both of the trainers involved at this site during the first year agreed that the implementation met most of their expectations. They understood that at Campus A the preferred approach was the direct training of students.

Academic Year 1989-90

Karen continued as the sole trainer for Campus A in the second year of the project. She worked with seven "Strat" groups and tailored her work to each group's needs as she continued the violence prevention curriculum. Along with the internship coordinator, she worked with students to bring about better interpersonal relations at their work places by role-playing episodes of conflict resolution. These lessons generally ended with discussions of skillful questioning, power and authority, and avoiding conflict escalation. Karen also introduced conflict resolution to the orientation classes and helped students plan the activities of the school store.

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[1] The training utilized a ten-lesson violence prevention curriculum developed by Deborah Prothrow-Stith (see Chapter II References for full citation)

[2] See Chapter II for definition of terms.

[3] AEIOU is a communication model for conflict resolution which helps people understand communication styles and tactics. A = attack; E = evade; I = inform about your need(s); O = opening up the other person to find out what their needs are; U = uniting: the two sets of needs are rephrased so that instead of arguing over two positions, the problem becomes something "out there" with both parties working on it together to reach solutions which satisfy both sets of needs.

Karen conducted approximately 145 classroom lessons and innumerable individual staff development sessions from October, 1989, to June, 1990. In addition, from March to June, 1990, she held 16 workshops to train 11 student mediators. Details of the kind of lessons Karen taught can be obtained from the summaries of two of her lessons, from year two, presented in Chapter VI.

The main drawback at Campus A in year two was that the trainer had such a limited amount of time for such a broad involvement -- she was spread too thin. Although she was spending two days per week at the site, it was taking weeks for her to return to each teacher's classroom. AHS administrators said they would hire her for full-time work if they could. However, the staff of the ICCCR saw an ominous side to this scenario. One researcher observed:

> This was another in a series of successful lessons by Karen , but I would like to see the teachers at [Campus A] do more conflict resolution teaching and see Karen do the observing. I'm worried about how the transition will take place at the end of the project.

Throughout year two of the project, despite the pressures of time, Karen was called upon by the staff at Campus A to mediate disputes between students and between students and teachers. This role was rather informal, but eventually it helped in the formation of a student mediation group. The group was organized to help avoid the escalation of disagreements and to prevent expulsions for fighting in school. It was to be another avenue students could use for conflict resolution. Topics in the training sessions included all of the topics taught in conflict resolution mentioned above plus: setting ground rules, suppressing rumors, judicial process vs. mediation, and generating options for settlements.

On two occasions in May, 1990 Karen observed the mediation team at work. In a successfully mediated student-student dispute, the team set guidelines for how the parties would act toward each other in the future. Karen praised the team for exhibiting "great active listening skills and reframing skills." In a dispute between a teacher and student, the team worked out a settlement in which the student was obliged to make up the work owed and the teacher agreed to allow time for talking through subjects that were on the student's mind. Again, Karen gave positive feedback by congratulating a student mediator on her opening statement in which she described the dispute clearly and concisely.

When Karen was called on to counsel students, they often revealed to her intimate problems and conflicts that involved their family life. She asked them to break the conflict into the aspects of conflict resolution as she had taught them -- positions, needs, and solutions. With teachers, Karen worked over the telephone, during lunch, and during free periods doing one-to-one staff development. She developed lessons to accommodate their needs. She put copies of the most successful of these lessons in a packet and gave it to teachers as models of what they could do. This way they could take advantage of teachable moments when she was not available. The teachers were comfortable with the lessons and, by the end of year two, ten of the fifteen teachers were doing conflict resolution lessons in class when Karen was not present.

Thus, at Campus A there was a model of training that was both formal and informal. The trainer made formal arrangements to work with someone's class. At other times she was called upon in informal situations to mediate or to do individual staff development. She became an accepted member of the staff.

One of the research assistants took the role of an assistant trainer during the year. He carried out activities such as videotaping the students in their role playing. Then he played the tape for them to see the sort of behaviors they used. He helped them by pointing out behaviors that would bring them closer to resolution of conflicts and those that would take them further from it.

The second year of training at Campus A can be summarized in this way: The rapport building accomplished in the first year helped the training to begin early and proceed successfully. There was a good depth of conflict resolution involvement as the training spread through regular classes, strategy groups, the orientation class, the career classes, and to a lesser extent, the school store. The trainer's participation in the resolution of school conflict led to the organization of a student mediation group. Although there was some concern that the faculty was becoming too dependent on her, Karen estimated that 8 out of 13 staff were regularly involved in conflict resolution as the second year ended.

Academic Year 1990-91

Lack of funding prohibited regular training in year three. Karen spent eight days in the Fall of 1990 doing staff development and planning at Campus A. This was mainly a reinforcement of what had been taught in previous years.

The mediation group which she had trained during year two continued to function, as planned, under the direction of a teacher who had been quite involved with the training. According to the coordinator, conflict resolution continued to be taught by teachers in the orientation class and was used in the strategy groups. The trainer, who continued to have telephone contact with staff at Campus A, viewed the site as being in a transitional stage in year three -- a stage in which the teachers began to take the role of the trainer. Observations were not conducted during year three, but in our last contacts with the site it was reported that 75% of the staff were actually using and/or teaching conflict resolution skills, not in the same way Karen had done, but more indirectly. Thus, with little trainer involvement this site was able to proceed with implementing the concepts of conflict resolution. When contacted at the end of the year, the coordinator said:

> The conflict resolution training has wormed its way into the culture of the school. The effect is not vast, it is subtle. Now if two kids have a problem the teacher knows about it. The way the training plays a role is that now there is a sense that something should be done about it to get two kids together who have a conflict. . . The way that it will continue here is with the older staff. The staff that has been here through the whole project. When staff have problems with students they use personal mediation as an approach to solve problems.

Training at Campus B

The Trainer

Beth (a pseudonym), the trainer at Campus B, disliked the titles "trainer" and "staff developer" since, to her, they did not convey the interactions between her and the AHS staff as ones of mutual exchange. This helped to make Beth an appropriate person for this site since the staff also regarded the training as a reciprocal process.

Previously, Beth had been a consultant to other cooperative learning projects in schools and she taught English to speakers of other languages. She lived in India for two years and was a staff developer for conflict resolution in a Peace Education program in New York City developed by Educators for Social Responsibility. The skills she transferred from those experiences to her work at AHS are those that allow a newcomer to become adjusted to a new cultural setting. She said that anyone who is the newcomer to a previously established group must ". . . see what the culture is like before doing anything." She demonstrated this sensitivity to her target audience at Campus B and was careful to observe the setting for awhile before beginning the actual training activities. According to Beth:

> In order to be effective as a consultant. . . I think it is important to have trust and build rapport with people in order to work with them. . . I got a sense of the atmosphere of the school. . . I chatted with teachers, listened to their gripes and grievances. . . and provided materials [not just on cooperative learning but] on how to engage students in learning.

Prior to working on this project, Beth received training in cooperative learning at a workshop conducted by the Johnsons. Thus, both conflict resolution and cooperative learning were included in her previous experience. This was just what was needed at Campus B, where the training consisted of a combination of the two. During her time there she was successful at intermingling well-recognized concepts of education and the fundamentals of conflict resolution into her cooperative learning lessons.

Beth was cognizant of the fact that reflection must be an integral part of the learning process and that when learning takes place in groups time for reflection must be part of the group plan. She regarded her work at AHS as that of planting a seed and getting it to germinate. She said:

> . . . using that metaphor, the next step would be making myself dispensable so they water and sunshine the seeds of cooperative learning for each other. So they start doing with each other what I've been doing, which is beginning to happen.

Academic Year 1988-89

During year one of the project, training was accomplished at Campus B with bi-weekly, two hour, after-school training sessions. The goal was to begin with conflict resolution training and then introduce cooperative learning. Trainers were also available to help teachers facilitate the introduction of the training to students. At this point Beth had not been hired. The Training Director as well as Karen and, later, Sarah (the trainer for Campus C) took turns conducting the training.

The teachers at Campus B seemed interested in having training, but were not accepting of aspects of the training. The beginning curriculum at this site included violence prevention, active listening, the AEIOU device, reframing, and the fundamentals of cooperative learning. At the training workshops, teachers asked thoughtful questions concerning the relevance of the conflict resolution model for their students. They raised concerns about the implications of teaching conflict resolution skills to students who were frequently confronting non-negotiable situations in which they were powerless. They suggested that the model should be modified to fit their population. In response, the trainers pointed out the value of having the students learn about other types of conflict situations. They reiterated that part of the training content was to teach the distinction between negotiable and non-negotiable situations.

Another factor in the teachers' lack of acceptance was that some teachers at this site were familiar with conflict resolution and cooperative learning from courses they had taken. They felt that this was something they already knew and challenged the concept of someone coming to "train" them. This led to negative interpersonal exchanges between some teachers and the trainers. As a result, training at this site was discontinued in February,1989, after nine workshops had been held.

During the suspension of training sessions, attempts were made to re-establish communication and renegotiate the project. In April of 1989, the staff of the ICCCR wrote a memo to AHS clarifying the goals, expectations, and needs of the ICCCR project. It acknowledged the value of the positive and negative feedback the school staff had given and listed detailed suggestions for how the project could continue more successfully. For instance, it recommended the establishment of liaisons to assure better communication between AHS and the ICCCR. A meeting was held with key staff from the ICCCR and AHS in attendance. The memo was discussed in relation to all three sites, but the contents were specially targeted to address the problems that had occurred at Campus B. Commitment to the project was renewed.

In the meantime, according to retrospective interviews with the teachers and coordinator at Campus B, the five teachers who had attended the training workshops regularly continued to have their students work in cooperative groups even while training was suspended.

The Training Director contacted Beth as a possible trainer for Campus B. In June, 1989, a meeting was called to introduce the staff at Campus B to Beth and discuss the continuance of the project. As mentioned above, Beth was known to have a style that was very much suited to this site. She regarded training as a mutual learning process and had recent experience in staff development in the areas of conflict resolution and cooperative learning. Following the meeting, the staff at Campus B decided to continue in the project and to begin with the new trainer in September.

Thus, the first year of training at Campus B can be described as difficult and minimally successful as attempts were made by three trainers, at different times, to make entry and build rapport. In six of the nine workshops, successful lessons were conducted and meaningful discussions of classroom applications were held. Yet there remained serious apprehensions among the faculty concerning the substance and methods of the project. The staff participation at this site was the least of any site (attendance at the workshops had ranged from 5-7 people).

The cessation of training led to a review and renegotiation of the project by the ICCCR and the school. Meetings at the end of the year helped to regenerate the project as teachers were assured they would be helped and encouraged to adapt the training to the needs of their students. The year ended with hopes raised for a new beginning in the Fall of 1989. Despite the disruption of training, nine two-hour workshops for teachers and numerous training-related classroom lessons were conducted by teachers. All Family Groups at the site had experienced some lessons in violence prevention and active listening.

Academic Year 1989-90

Beth began working at Campus B in September using an approach that emphasized mutual learning between the staff and herself. This gave recognition to the staff as agents in their own change process. Beth effected entry and built trust at this site first by observing in areas of the school where teachers congregated. She chatted with them about the type of assistance they would like from her and what they were doing or wanted to do with cooperative learning. These introductory conversations paved the way for classroom observations and teacher/trainer discussions at which cooperative learning lessons were planned. The planning paved the way for the introduction of cooperative learning, incorporating one element then adding more as the teacher and students became comfortable.

For some teachers, who were already using elements of cooperative learning, this planning led to an increase in the frequency and quality of its use. For others, it was a beginning since what they had been doing in the name of cooperative learning was what Beth called "cooperation in learning." This was basically small group interaction, but not cooperative learning according to the Johnson model. For example, teachers would have students sit in groups of their choice. When they would do an activity, it was suggested that they work together on it. This method incorporated the *face to face* interaction element of cooperative learning but without the element of *positive interdependence*.

The trainer wanted to be sure that she had formed good relationships with teachers before suggesting that there were other ways to do cooperative learning. If teachers asked for assistance she gave demonstration lessons following the Johnson model. Then she set up times to co-teach a cooperative lesson with that teacher.

Some of her lessons combined cooperative learning and conflict resolution. For example, in a Careers class she and the teacher guided small groups of students to work cooperatively on inventing conflict situations which could arise in the work place. Later, the group did role-playing to demonstrate the resolution of these conflicts.

These observations, demonstrations, and teaching sessions (45 sessions from September to December, 1989) were done in a wide variety of courses including International Law, Life's Origins, and Leadership. Beth was working directly with six teachers by this time. With others she was still conducting informal talks.

The positive progression of the project was in evidence when, in a shared decision, it was decided to make cooperative learning training part of the new teachers' orientation. Seven of the eight new teachers began working with the trainer. This increased the participation to 13 staff members, more than had ever before participated at this site.

Becoming more confident that she was accepted at Campus B, Beth suggested incorporating the training into an orientation class for students. Up until then there had not been an orientation class at Campus B. At the beginning of cycle three in January, 1990, an orientation class for new students began with a focus on conflict resolution skills.

Having made a strong entry, the trainer began another phase of the intervention at the end of January, 1990. The core of the training shifted to after-school workshops. This model, along with the individual planning sessions, continued to the end of the school year. The workshops signalled a new phase in the intervention -- they required a new level of commitment. Faculty and staff were willing to stay an hour and a half after school for training. They were paid for this time.

The fifteen workshops, held between the end of January and the end of May, 1990, had a range of attendance from 7 to 13. Participating members included teachers, the coordinator, two paraprofessionals, and the administrative assistant. The topics covered in these workshops included: the role of groups, restating and paraphrasing, problems and successes in cooperative learning lessons, team teaching, and planning lessons. Two illustrative workshops from year two at Campus B are summarized in Chapter VI.

During the term that the workshops were held, Beth noticed that some teachers began to shift from "cooperation in learning" to cooperative learning as described in the Johnson model. For some, the model fit their style. It is a highly structured one in which the teacher must carefully think through what the lesson is going to be and how it will be done with small groups. Two teachers who were familiar with Slavin's model of cooperative learning used it. Groups of up to eight students each were composed and these groups competed with one another. This was a way to handle the poor attendance. When many students were absent, there was still enough of the team to function in the competition.

Campus B teachers began asking for more assistance and initiated more conversations in which they told Beth about cooperative learning lessons they had done. For new teachers the workshops became a support group as it built cohesion between them and the continuing staff. Also, the workshops themselves were models of cooperative learning lessons. The teachers worked in small groups and later reflected on the group process and what had been learned. At the end of each workshop, time was allotted for Beth and the teachers to review and reflect together.

Thus, the second year of training at Campus B can be summarized as very successful mostly because of the skill of the trainer in making a prudent entry to the site. She took more than three months, two days per week, to converse and observe. There was a transitional period characterized by demonstration lessons and co-teaching. As more staff began to participate, a phase of 15 workshops occurred. These workshops were highly rated by the faculty and staff. The workshop phase was supplemented by continuing staff development in which Beth observed and planned lessons with the faculty.

Academic Year 1990-91

Although the funding allotted eight days for training in year three, Beth's work at Campus B continued well into the Spring of 1991 in the form of two hour, after-school workshops. According to Beth and the coordinator, these workshops were well attended and the interest and enthusiasm which began during the second year were maintained. No observations or survey research were conducted at this time.

Beth reported that mediation skills were added to the list of training topics at the request of students and teachers, who had heard of the mediation group that was operating at Campus A; this represented a positive adaptation of the training across sites.

Although Campus B experienced more staff turnover than the other sites during the project, the trainer and coordinator estimated that 75% of the staff were actively involved in using cooperative learning and/or conflict resolution skills with students at the end of the third year.

Training at Campus C

The Trainer

Sarah (a pseudonym) is a training specialist who as an undergraduate majored in dietetics and later became interested in education. For more than ten years she served as a school volunteer who made audio and video tapes of lessons and books. This work helped her realize how much she enjoyed teaching children. As she began to volunteer in classrooms, Sarah worked with teachers who emphasized group work and showed her "the richness that groups can bring to life."

Later Sarah took graduate courses related to creativity and group work. When she became a part-time teacher she attended a staff development session at which Roger Johnson was the keynote speaker. Enthused by his approach to working in groups, Sarah signed up for a workshop with him. Soon she had taken several of his cooperative learning courses, including the leadership workshop in which participants learn how to train others in the techniques. She became a staff developer for the school district. When David Johnson led staff development workshops there, she was his assistant.

As Joanne's career as a teacher and trainer developed, she became more aware of her emerging philosophy about working as an educator to address societal woes. She explained it this way:

> I personally regret the waste of minds and lives that I see around the world. . . it bothers me that we know how to do things and we don't do them. They are not even expensive things -- it bothers me that there is not proper prenatal care. . . and that kids don't get fed. [Teaching] is an opportunity for me to offer an education that means more to each kid. . . a chance to develop some skills, working skills and people skills that will make it possible for them to have choices. . . if you don't have people skills that put you in the mainstream, then being in the mainstream is not one of your choices.

This outlook on education, combined with the training she received from the Johnsons, led Sarah to the conclusion that learning in cooperative groups is an effective way to give students skills that they need for making successful progress through a career and in life in general.

As our project was beginning at AHS, Sarah was conducting training for teachers in various school districts and working as an artist-in-residence at a suburban alternative high school. Our Training Director obtained her name from the Cooperative Learning Center in Minneapolis, which is under the direction of the Johnsons. When the project was explained to her, Sarah thought it would offer a choice opportunity for her to experience an urban setting and learn more about models of alternative schools. Also, the at-risk population with which she would work at AHS was one to which she wanted to apply her philosophy of providing as many choices as possible.

Sarah envisioned her roles at AHS as two separate ones -- that of trainer and that of staff developer. As a trainer, she would run workshops for teachers helping them to learn the theory and method of cooperative learning. She would conduct her role as a staff developer less specifically. It would consist of observing how the teachers were functioning in terms of their use of cooperative learning. For this she felt she had to be invited by them into their classrooms. Her main goal at AHS was to present the model and get the teachers to tailor it and use it with the students.

Academic Year 1988-89

As discussed previously, the training at Campus C had an unsure beginning due to difficulties of finding a union-assigned trainer for cooperative learning. Once Sarah was contacted, she visited the site once in December, 1988, when the Training Director introduced her to the staff. She began regular training at Campus C in January, 1989.

Sarah questioned the staff about their knowledge and experiences with cooperative learning. She found out that during the preliminary training in the Summer of 1988 the teachers had learned about *positive interdependence* and designing cooperative learning lessons. Thus, she began by teaching them the *social skills* which are the fundamental building blocks of cooperative learning.

The after-school workshops were to meet bi-weekly, but holidays and other school-wide concerns forced the cancellation of two. The teachers did gain a beginning knowledge of social skills, but some perceived them as a curriculum item separate from other things they had to teach and felt they did not have time to add "something extra" to classroom work.

One of the school-wide concerns in February was an upcoming production -- a Black History Month presentation. Teachers wanted the trainer to help them with it. Sarah regarded this school project as a diversion from the type of training she wanted to do, but she accepted it as part of the give and take needed to establish rapport. Thus, the training focus was shifted to that production and the problems people were having putting it together. The production became a vehicle for teaching problem-solving and cooperation. Sarah explained the exchanges among teachers this way:

> . . . they were talking about 'this didn't work,' so there was a lot of really nice group stuff on what was happening. 'Did you try this? Let's try this'. . . It was

> really nice. [They were] sort of working with each other following what I think is a nice joint or collaborative model of designing lessons and solving problems, which is what's part of cooperative learning. . . the next thing you usually try to teach when you're doing a basic training is staff collaboration. And that was done as they did problem-solving on the performance. The production became the curriculum focus for the training.

The production was a success. Every Family Group did something they created themselves. When it was over, some students who had felt they were being forced to be in the production wanted to know when they were going to do the next one. The teachers achieved a kind of collegial support. They had a chance to use the social skills they learned in the training. Everyone had a feeling of success and that success was linked to the training because everyone knew that they had worked together cooperatively to achieve it.

After the production in March, the faculty began talking about the schedule of training for the next school year. They wanted to use cooperative learning in their Family Groups. Again, the trainer thought this was a diversion from what she had planned. She observed Family Group sessions to see how cooperative learning might fit. She concluded that Family Groups needed to be a different kind of group than what she was training for. She voiced her hesitancy to the staff, but the issue never quite got resolved.

Another change the staff wanted was that they would rather have the training as part of weekly staff meetings instead of after school. Students were dismissed early each Thursday to allow for the staff to meet. Campus C faculty thought that the time could be used for training. There were three teachers taking graduate classes on Mondays when the workshops had been given. Although the trainer had spent time with them individually, trying to keep them caught up, they wanted to be present for the workshops.

Logistical items such as these were discussed in the three workshops given during March and April, 1989. Sarah also discussed effective communication and tried to show teachers how to infuse cooperative learning into things they were already doing in the classroom. She talked about the value of groups and the kinds of skills people need to bring to groups. The trainer went into classrooms to observe and give specific suggestions about the cooperative lessons she saw.

The attendance at the workshops decreased from about 14 teachers to 2 in May because of the teachers' paperwork burden at the end of the school year. The sessions stopped early in May.

Thus, the first year of training at Campus C can be summarized in this way: The trainer made a quick entry well after the school year had begun. She conducted three workshops on social skills then put aside her idea of what training needed to be done to help with the production. There was little carryover of the training to regular classroom teaching, but the staff felt that the training made a positive beginning by helping the school organize a good artistic production. There was periodic give and take about the scheduling and whether or not the trainer could assist the teachers with doing cooperative learning in Family Groups. In the spring, three workshops were held and six teachers were trying to do cooperative learning in classes.

Academic Year 1989-90

The training sessions in Fall, 1989, started at Campus C with assessing previous successes. Sarah and the staff shared what had taken place the year before and the kinds of problems they had experienced. The coordinator had gone to advanced training in cooperative learning during the summer and was anxious to let the faculty know of his experience. He and the trainer conversed often about this experience since both of them had received training directly from the Johnsons. They discussed their goals for the year, deciding that the coordinator would assist Sarah in the training. They wanted faculty members to do something in cooperative learning once a week in one course as a minimum.

This implementation goal was discussed with the teachers and seemed to be accepted by them, but the enthusiasm of Sarah and the coordinator was not transferred to the majority of the faculty. Observations of classrooms and training sessions revealed that eight teachers were using small groups as a classroom strategy.

Workshops kept being canceled for lack of attendance or for lack of time during staff meetings. Teachers continued to say how difficult it was to implement cooperative learning. It was decided that workshops would only be held in the staff meetings every other week and on the alternate weeks they would be held after school on Mondays. Using this schedule, Sarah and the coordinator quickly reviewed what had been learned the previous year with the hope that training would progress rapidly from the Johnsons' textbook for beginners in cooperative learning to the more advanced book. For each training session she picked out a piece of the model, described it, and gave examples of activities. For instance, there were lessons on how to structure *positive interdependence*, and how to plan lessons. These lessons were taught by having teachers work together in cooperative groups. In total, five workshops, with 13-14 staff members in attendance, were held from October through December, 1990. Summaries of two sample workshops are presented in Chapter VI.

Sarah felt that staff meeting time on Thursdays was inappropriate for training and she thought there should be more of a requirement for everyone to attend. By this time she wanted to work in a very structured way with them since she knew not many teachers at Campus C were ready to do cooperative learning without a lot of support. Sarah tried to do more one-to-one staff development, seeing where people were functioning in their plans and how they wanted to progress in cooperative learning, but the cancellation of training sessions was affecting morale.

In mid February, 1990, a meeting was held between the project staff from the ICCCR, the Principal of Alternative High School, and the faculty at Campus C. The project staff made a presentation of some of the preliminary results of the quantitative research and answered questions concerning the project. The faculty were pleased and recommited themselves to the project.

Campus C would move away from after-school workshops to a staff development model in which the trainer would work with individual teachers. They would no longer try to make the Family Groups the focus of the cooperative learning; instead, there would be a concentration in the subject matter classes. This recommitment stage was an important step though which the site gained energy to proceed.

Following the new model of training, Sarah conducted 15 staff development sessions during February and March. These usually lasted from 1-2 hours and consisted of a classroom observation and a planning session. They included work with faculty in the areas of reading, American history, and writing. Unfortunately, an illness in April prevented Sarah from returning to Campus C for the remainder of year two.

The second year of training at Campus C can be summarized in this way: The coordinator returned with an enthusiastic spirit about cooperative learning after participating in summer training with the Johnsons. He and the trainer worked together to set goals for training and implementing the use of cooperative learning school-wide. Workshop implementation was never fully effective, though several strategies were tried. Eight faculty members tried to use cooperative learning regularly, but the high level of eagerness on the part of the coordinator and trainer was not transferred to the others. The cancellation of sessions, the efforts to regroup and implement a new training model, and the illness of the trainer resulted in less training at this site than at the others during year two.

Academic Year 1990-91

At Campus C, the training had peaked and fallen several times during the first two years of the project. The fact that half of the faculty were attempting to use cooperative learning in year two demonstrated some commitment. However, that commitment was fragile and it needed more of the trainer's time and energy than the available resources would allow. The trainer had only eight days in which to do staff development in year three.

During these days she contacted individuals who had tried cooperative learning in the past. She found that most of them wanted her to give them support for their classroom teaching and the issue of working in groups was secondary. They continued to say how absenteeism and the pressure to go through the curriculum made it difficult to do cooperative learning.

In year three, no systematic qualitative research was conducted, but Sarah said that, after her brief time at Campus C, she felt most of the teachers were not ready to continue cooperative learning on their own. At the end of the school year, the coordinator reported that he and only one other teacher had continued to use cooperative learning systematically in their classrooms.

Interaction of Setting and Intervention

The analysis of the qualitative data relating to our training intervention at Alternative High School has revealed two themes that are important not only to this project but also for schools, education, and interventions in general. The themes do not apply uniformly across all sites of AHS, but they show enough regularity to be worthy of discussion. They are: (1) Physical Antecedents of Communicative Processes; and (2) Social Structural Issues in the Implementation of Training.

Physical Antecedents of Communicative Processes

Productive communication is basic to working cooperatively and resolving conflict. Some important aspects of communication, namely, active listening, stating positions clearly, and assessing the statements of others were given major emphasis in conflict resolution and cooperative learning training. Certain aspects of the physical environment, such as the spatial arrangement of furniture, may support or hinder the capacity to communicate effectively. At all three of the campuses we studied, interesting issues arose concerning how the physical environment helped or hampered the processes that facilitate productive communication.

A quote cited previously in this report illustrates how students think of Campus A as being much smaller than other schools they attended. The coordinator told of being ". . . able to run from one corner of the building to the other in seconds." This perception of size is a function of the enrollment as well as the physical space the school occupies and how things are arranged within it.

When an area is as small as that encompassing Campus A, students and staff get to know each other better -- they see each other more often than they would in a larger space containing more people such as that of any large comprehensive high school. While the smaller size of Campus A is generally a more supportive environment for communication, not all communication is positive. Thus, the increased communications brought about by a smaller environment can have detrimental effects. The coordinator of Campus A summarized it this way:

> In all of this, our physical environment is a factor. It really does affect the way concepts develop. We are kind of in a pressure cooker here. There are 160 kids on this one floor and 15 staff members. Rumors travel fast. There is even a space problem when it comes to where in the world will we put [the trainer] for training. In a situation like this, relationships cement very fast and so do problems in relationships.

All types of communication are increased by the physical attributes of this site -- those that help to resolve conflict and those that fuel it. Occupying a space that promotes conflict can be calamitous if arrangements are not made to defuse provocative situations. For example, on one occasion when two students had an argument and one went into the restroom to lament about it, her voice could be heard in the hallway and in several classrooms. The more students heard it, the more they told others. The friends of each adversary wanted to go and hear more about it. Fortunately, when accusations and rumors spread this quickly among students they are also spreading quickly to the faculty. A teacher was able to intervene in the situation.

This type of occurrence at Campus A helped to give rise to the mediation group. Although violent conflict is rare at the school, these disagreements arise often at all three sites. The existence of the conflict resolution training at Campus A made the solution obvious, i.e., since students were already receiving training about resolving conflicts, a natural progression was to set up an institutional structure that could make use of these skills to help settle common disagreements.

Thus, physical factors as well as interpersonal ones led to the need for a mediation structure and the intervention training provided the method for it. Since the close quarters of the school make it difficult for the students to avoid encounters with adversaries, students are obliged to seek channels such as the mediation group to settle their differences. The influence of the physical structure on communication and the presence of the intervention, combined to create the mediation group.

Social Structural Issues in the Implementation of Training

The change agent must fit amicably into the existing fabric of the institution he or she enters. Although change is the long range goal, the new agent must first adapt to pre-existing factors at the setting in order to learn about the site and build trust. The realization that a social structure -- a network of relations -- already exists and that it is not easily changed is something trainers should incorporate into the entry process. In implementing the training at Alternative High School, it became clear that the processes of entry and learning the school culture were especially salient in the small, informal environments of the individual campuses.

It would have been helpful to have the trainers and other project staff at the sites for an introductory period before training began; however, the limited resources of the project prohibited this gradual introduction of the project staff. The trainer from Campus C said in retrospect:

> I think that if we have the opportunity to do it again, I would like to come in the beginning three months, three or four times a week, and get to know everybody. . . especially if it was a new site. You spend a lot of time there initially and then you can work better because you've established who you are.

Similar sentiments were expressed by the coordinator at Campus A when he said: "In a small school such as this, a program coming in really needs a honeymoon period. . . especially for implementation throughout the school. . ."

The lesson of "how to work your way into the setting" was most poignant at Campus B. As discussed above, our lack of rapport-building and trust-building was a critical factor in the scenario that led to the cessation of training during the first year. When the project was renegotiated and a new trainer was assigned, the experience was reversed. We proceeded with good rapport and successful training. It is clear that what made the difference was the time and manner the trainer used in effecting entry and building trust.

The following summary of the work done in year two by the trainer at Campus B focuses on the way she entered and became established with little of the disruption or dissension that characterized the first year of training at that site. She prudently made herself a participating member of the staff and successfully stimulated the faculty to participate more readily in the training.

One of this trainer's first strategies was to locate herself at places in the school, outside of the classrooms, where teachers congregate -- places such as near the duplicating machine and the coffee machine. Her acknowledgement of the existing structure was shown in her choice not to enter classrooms too early in her work. Since classrooms are the domains where teachers feel most in charge, she chose more neutral areas to be the first places she had conversations with them. When she was permitted to observe classroom lessons she recognized this as a signal that trust had been established. In the beginning, she interacted only with teachers with whom it seemed easiest to form a relationship. Gradually she worked with other teachers, whom she had to ask to let her observe.

The trainer observed teachers' styles of interacting with students and how the teachers forged those relationships. She described some teachers as ones who wore "teacherly masks" and others who were more genuine in the way they interacted with students. The ones who wore "masks" had voices that addressed students in a way that was not necessarily condescending; it was respectful, but it was a "teacher" voice not present when the teacher was not addressing students.

In her observations of the classroom, what this trainer describes as "teacherly behavior" is a characteristic of the classroom social structure that limits the type and flexibility of interactions that can exist between teacher and student. The use of cooperative learning in these classrooms decreases the rigidity in these interactions so that new types of teacher/student relationships are possible.

Another step in the process of working into the social structure happened when, in staff meetings, the trainer began to make contributions that would help to facilitate the work of the school not directly related to the training project. She asked questions about other activities in the school that made demands on the teachers' time. This gave her better knowledge of the context in which she was working and allowed her to develop ways to intertwine these activities with cooperative learning. Attending these meetings increased her visibility at the site and in turn increased her rapport with teachers. Just being there and being concerned were ways of forging relationships and becoming accepted as someone who had something of value to offer the staff.

This sensitivity of the trainer to the multifaceted roles and duties of teachers was invaluable to the project. Being aware of the existing organization and structure helped her to fashion a model of training that did not overburden teachers with additional roles. Instead, cooperative learning became a technique to use within the existing curriculum.

A specific example of sensitivity in the trainer's interactions with teachers was a time when a teacher needed help to motivate students who were working in groups on a social studies project. One morning, in the chatting around the duplicating machine, the trainer asked a teacher what was taking place in her classroom. The response was that students would do oral presentations. They had been working in groups, each group studying a different country. They had made posters and had done some research. Each group was to make an oral presentation to the class based on its work.

In a similar lesson, done previously, the students had been bored with oral presentations. The teacher asked if the trainer could offer suggestions to make the lesson more interesting. The trainer recommended that she might try the jigsawing technique so that students would get a chance to work in new groups and practice with others who were studying different countries. Then they could bring new ideas back to their regular groups and discuss how to make the presentation.

The teacher followed this suggestion. Although the lesson took longer than planned, the teacher learned another way of organizing classroom work. It was a more cooperative way that increased the students' enthusiasm for what they were doing. Also important to this episode was the fact that the teacher was willing to take a risk and do the lesson another way; the trainer provided the support for this risk-taking. The increase in students' responsiveness gave the trainer and the training process credibility as the teacher told other school staff people. This contributed to what the trainer called the "snowball effect," i.e., once people got to know and trust the trainer and saw that what she offered could benefit them, word got around; the social structure became a communicative network.

Spending a considerable amount of time to lay the groundwork for relationships with teachers made the trainer's work more efficient in the long term. After trust had been established, the trainer could have ten minute conversations with teachers to give suggestions and they could proceed on their own. In subsequent weekly workshops they discussed what they had done in their classrooms with the trainer's recommendations.

The trainer's work was not limited to teachers; support staff were involved also. When the trainer observed the administrative assistant effectively using conflict resolution skills with a group of new students, she suggested that this be formalized by creating an orientation class. In this way new students would come to learn the tone of the school as one where attempts are made to resolve conflicts with prescribed techniques.

The orientation class began on the first day of the second cycle, led by the administrative assistant, who, although not a teacher, developed enormously positive relationships with the students. She taught conflict resolution skills as she gave them an orientation to the school. The knowledge and skills they gained in this setting became a foundation for the use of cooperative learning in classrooms.

Once a week the administrative assistant and the trainer met at lunch time to discuss the orientation class. The successful implementation of this class with this staff person was especially meaningful to the trainer because the administrative assistant is an African American, as are most of the students. The following is the trainer's view about the importance of ethnicity to various roles and statuses in the social structure of Campus B:

> [The administrative assistant], in particular, I want to support as a person who can make use of what she's learned and as a person who is not a teacher but has enormously positive relationships with the young people in the school, and quite frankly, as a person of color who I wanted to see be able to exercise her skills in a more powerful way in that setting where her job title was 'office worker'. . . I wanted to work with her. I like her. So that's probably four reasons: her skills,

> the need for an orientation class, my sense of wanting to assist, and that she is one of three people of color on the staff of that school, a staff of fifteen or eighteen. And all of the students, except for one or two, are people of color. And all of the people of color on the staff are either paraprofessionals, which she and another person is, or the resource room teacher. So none of them are full teachers.

In essence, the trainer was developing the administrative assistant as a role model for minority students. Because most of the staff did not have the same ethnicity as the students, this person was in a position to act as a liaison -- a culture broker -- who could use her identity to link students with other staff members and to model her professional role.

Such techniques used by the trainer at Campus B were subtle. She planted ideas without intruding or imposing, then she allowed staff members and students to "water the seeds" of these ideas for each other. This has aided institutionalization of cooperative learning at this site because the staff and students had ownership of the process. The trainer was always mindful of the social structure of the school. She knew that change had to take place in a context where some preexisting relationships had to be preserved. She said:

> Teachers, in order to begin to make changes. . . must not feel isolated from each other. The more they themselves are in a cooperative learning mode with each other. . . learning how to teach better or learning how to handle challenges that a particular school situation is confronting them with, the more they will be able to do that with their students and the more they will be able to model the social skills of appreciation, encouragement, and active listening. . . So as much as cooperative learning with students has been a kind of long term goal, one of my goals in the workshops has been to build cohesiveness among the staff.

Chapter VI: Field Notes for Case Studies*

This chapter includes summaries for field notes for four types of case studies: case studies of internship sites; examples of training sessions; a case study of student life at AHS; and classroom observations.

Case Studies of Internship Sites

What follows are summaries of field notes from three observations of Alternative High School students at their internship sites -- one from each of the three campuses we studied. The observations were conducted by three different researchers. These examples represent a variety in the type of internship site, organization of the site, and expectations of the student interns. Also embedded in the description and the comments recorded by the researcher are indications about the different skill levels and occupational ambitions of the interns.

Internship Summary #1

Date of Observation:	Feb 21, 1990
Time:	8:30 to 12:00
Site:	Shearson Lehman Branch Automation, Department of Private Investments, New York City
Purpose of visit:	Internship observation of Roger, a student at Campus A

Background Information. This was a placement under the Executive Internship program. Executive Internship is an organization through which many high school students get placement at the city's businesses and community-based organizations for internship positions. Students from Campus A are typically placed in these positions for five to six months. They earn school credits rather than money for these positions, and do not attend school during this period.

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* This chapter was prepared by Vernay Mitchell.

Roger, an African American male in his final term at Campus A, started working at Shearson Lehman on February 5th. His internship is expected to last until the end of June.

Observations. I arrived at Shearson Lehman at 8:25 am and I went up to the 10th floor. It was a very large open space filled with office cubicles. Each cubicle had one or more computer terminals and was occupied by one person. Roger's cubicle was at one end of the floor between those of his supervisor and another office worker, both of whom appeared to be quite busy.

Roger was neatly dressed in grey pants, black high-necked shirt, and black, sneaker-like shoes. He and I went up to the 12th floor to the computer room, a space with about 60 computers in it. No one else was in the room and Roger used his electronic identification card to get in.

Inside, Roger turned on all the computers and started running a "performance test" on them. He had a manual which indicated which keys to push to do this test. Roger said that this operation typically takes about one and a half hours to complete.

I asked Roger about what is meant by a "performance test." He did not know in detail except that it readies the computers to quote the current stock prices.

While the test is running, Roger said that he typically stays in the room and learns computer skills on one of the terminals. The supervisor has given him a computer manual and he uses that as a guide. He gave me a demonstration of how to log in and showed me rudimentary use of a graphics program.

Roger told me that he works here from 8:30 am to 4:30 pm, Mondays through Thursdays, and takes a lunch break at about 12:15 or so. Fridays are reserved for one-hour meetings with other interns and the director of the Executive Internship Program to discuss their internships.

Roger told me that his day typically begins with running this computer performance test in the morning. After this, he makes a copy of all the information of these tests onto a diskette and prints it. Next, he takes down the closing and opening prices of certain stocks (pre-printed on a sheet of paper) from the computer, and makes xerox copies of these. If there is any time left before lunch, he helps the staff make copies of diskettes, do xeroxing, and assists with anything else they need. At about 12:15, he goes to lunch. After lunch he helps with various odd jobs.

Roger said that he received on-the-job training for about two days at this site. Since then, he has worked on his own with little supervision.

I asked Roger what he wants to do after finishing his internship. He told me that he wants to go to college and study computer engineering. He wants to be able to design computer software and hardware. Roger has already applied to St. John's College, Rochester Institute of Technology, and another college in upstate New York. He took the SAT in January of this year. Roger told me that he got the information about the above colleges through counselors at AHS.

I asked about his family life. Roger told me he lives at home with his parents and does not have a job outside of his internship. I asked him why he left his previous school and he said that it was because he felt that the teachers and students did not care about learning. He said that he was afraid of becoming like them too.

Roger asked me about Columbia University and whether it has a program in computers. I told him that Columbia does. He wanted to know what GPA is required to enter the program and how much tuition is charged. I told him that the GPA would probably have to be 3.0 or above and that Columbia's tuition is quite high but that it provides financial aid.

Comment: Roger seems to be very serious about attending college and seems knowledgeable about the factors to consider in making a selection. He has done his homework for the application process. He seems to be very serious about his future and is quite sure that he does not want to be in an environment where he might stop caring about learning and being a member of the larger society.

I asked Roger about how much he likes working at this internship. He said that he likes it very much as the people are pleasant and he has had no problems so far. The room was very cold, so we stepped out for a few minutes. Roger started talking about Mike Tyson to a guard sitting in the hallway. After about five minutes, we went back to the computer room.

After the "performance test" on the computer was done, we came down to the 10th floor, where he printed out a diskette and left the hard copies on the supervisor's desk.

Next, we went back to the computer room. Roger started taking notes on the stock prices on a pre-printed sheet of paper. He worked quite steadily.

Comment: Roger appears to be quite conscientious. He also comes across as mild and well-mannered. Every time he did something new with the computer, he tried to explain the procedure to me. Although he isn't always clear about what he is doing, he requires very little supervision. He is obviously trusted enough to do the work well on his own. The supervisor appears to be helping Roger by giving him a computer manual so he can learn some computer skills on his own during the time he is in the computer room. It is my opinion that the internship is working out very well for Roger. He gets the time to learn skills in an area of interest to him which would help him with his college plans.

Internship Summary #2

Date of Observation:	March 8, 1990
Time:	9:15 - 12:00
Site:	New York City Department of Aging
Purpose of Visit:	To observe internship of student from Campus B

Background. In an old decrepit building near City Hall Park in New York, the Department of Aging (DOA) has its employment office. The halls are dank, dirty, and filled with dusty boxes and filing cabinets. Marcus, a black male student at AHS Campus B, works there as an intern in an office that has the designation, "The Job Club." This club is a support group for older citizens who are seeking jobs.

Observation. The supervisor, a white female, explained that Marcus usually arrives at 10 am. Inside, in one of the back offices, I saw four, somewhat elderly, people were going through and either filling out or reviewing sheets of paper. I left for a few minutes and returned to find the "job club" members sitting in chairs arranged in the middle of the room looking at a tape showing on a large TV monitor about how attitudes toward oneself affect employment possibilities. The "club" was comprised of a black male, two white females, and a black female. They all appeared to be in their mid-fifties or older. The tape they were viewing was prepared by Bill Moyers in the early 1970s. It was about employment programs that are successfully able to help the chronically unemployed. The "club" members watched.

The supervisor came in to tell me that she had called the school to find out if they knew anything about Marcus's whereabouts. She was clearly upset that he was late. Apparently Marcus was pretty reliable and this behavior was uncharacteristic of him. The school called and said they were trying to call Marcus at home, but could not get through.

A few moments later I heard her talking to Marcus. He had called to say that he would be in shortly. Not ten minutes later he walked in and began to work quickly.

Marcus set about sorting mail and filing as well as answering phones. After a few minutes he settled into his main chore of the morning, which was collating 60-odd pages of duplicated material for the members of the "club." These packets contained various information about getting a job that ranged from developing one's resumé, to making contacts, to handling oneself in interviews. From what I could see of the information, it contained the standard jargon and information about ways to get into the job market.

Marcus steadfastly went about the task of collating this material. He seemed concerned about getting it completed before he had to leave for school at 12:00 pm. This is a two hour internship.

Comment: It seemed to me that the nature of Marcus's work did not seem to affect him. It seemed that he regarded this only as a way of getting credit towards his diploma. It appeared to be meaningless to him beyond that. The people served by this office and the information he was responsible for providing seemed of little interest to him. I would have been encouraged if he had taken one of the "employment tips" packages that he was collating to use when he has to look for a "real job." The value of this work for that purpose seemed not to be realized by him.

Generally, however, I thought that Marcus's disinterest in his surroundings could, in this instance, be a healthy sign. This is not the ideal environment for a young person to be working in. It is a melancholy environment, bordering on depressive. To dissociate oneself from it is probably not a bad idea.

While Marcus worked, he talked to no one except me. He said, "I know you -- you are the lady with the tests." I said that he was right, although they are actually surveys. Once during our conversation he answered the telephone for the supervisor, who had begun conducting the next phase of the career workshop.

Marcus and I discussed why he was late. He explained that his sister had asked him to babysit for her children for a few hours the night before, but had then stayed out the entire night, not returning home until the early morning. Marcus said about her, "She took advantage of me." He explained that he had recently moved to the borough of Queens - about an hour and a half on the train from Manhattan. He said to get to school and work on time he leaves his house at 7:15. He said that he still returns to his old hangout in Brooklyn where, until recently, he had always lived. He feels that Brooklyn will always be his home.

Marcus explained that he will do this job until next January. At that time he hopes to graduate and attend the Borough of Manhattan Community College. He wants to be a liberal arts major, hoping to work during the day and go to school in the evenings. He told me he liked this internship. He appreciated that no one hassled him. He said, "I just come in, do my work, and I leave." Marcus said that the work he was doing today, collating and answering phones, was typical of the kind of work he does for this office.

Internship Summary #3

Date of Observation:	June 12, 1990
Time:	1:00 pm. - 4:15 pm
Site:	Forest Hills Community Center
Purpose of Visit:	To observe internship of students from Campus C

Background. Forest Hills Community Center is located in Forest Hills, Queens. The neighborhood is clean and quiet. One gets the impression of a quiet safe community, no trash on the street, people walking quietly, and not a lot of loud noise. The internship coordinator at

Campus C contacts the supervisor for the senior citizens' program each term to arrange for students to be interns.

The supervisor is an Hispanic woman with a "no nonsense" approach to working with student interns. For example, she insists that the students must be there exactly on time, they must come every time, and they can not resort to calling in and saying that they are not going to make it. She wants students who "are serious and appreciate senior citizens."

The supervisor has a list of home-bound senior citizen clients that the students work with. Each time the student interns come she has the names of the clients that need help that particular day. The name of the person, the address, and the directions how to get to the home are listed on sheets of paper. The students come in, get the sheets, and call the senior citizens to let them know they are on the way.

Observation. The two students I saw from Campus C this day were Lois and Patricia, two African American females. At the Community Center there were six sheets waiting for them. Since there were only two students the supervisor asked each of them if they would do "a double," meaning each of them would work for one client and then go to a second one all in the same day. Both students said that they weren't able to, so she gave them each one sheet and they proceeded to call the senior citizens who needed help.

The supervisor said that originally she had 6 student interns from Campus C this cycle and now there are only these two left. She said that, basically, this is a shopping and laundry service for senior citizens who either can't get out or can't carry a lot of groceries.

The students had called the seniors and ok'd it with them that they should come. They took forms to fill out as they do this internship. On the sheet are several reminders such as: obtain a receipt for any purchases, write the date and the amount of money that the person gives them for shopping, and the amount of money they return to the senior citizen. There is a line for them to sign their name and a line for the senior citizen to sign.

The supervisor read orally with each of them the directions to get to the homes. I left the community center with the two interns.

At the bus stop I started talking to the students about the internship. They said that it wasn't the best thing in the world but it was OK. Patricia said she didn't enjoy the work but she needed the credit and she didn't want to ruin getting as much credit as she could after she had done so much work. Both girls talked about the fact that the other interns who dropped out now lost their credit.

I asked them about why they wouldn't do a double session today. Both of them said that it takes too long and it gets you home too late. Patricia said that she hadn't got home from one double session until 8:00 pm. They said the reason there are so many extras who need help is that the other students dropped out. They felt it shouldn't be their responsibility to pick up their work.

I asked the two girls if they were graduating seniors. Lois said that she is one and told me that she would like to work in an office after graduating doing receptionists work like filing and answering phones. She said that she had done that particular job before for an internship for Campus C and she had enjoyed that kind of work.

As we rode the bus, the girls put in tokens that the supervisor had given them. The bus ride was about 15 minutes long. Lois and I got off in a rather commercial area in Forest Hills. Patricia said she had to go a few more stops on the bus.

Lois told me that her duties in this internship were limited to laundry and shopping services. She hates to do the laundry and only has to do it once in a while, about once per month. As we walked 3 blocks up the street to an area of apartment houses, she told me that she had worked for this same lady once before and enjoyed it because the lady talks to her. She said that some of the senior citizens really don't like you, they just want you to work and they don't say anything else to you except about the work.

Comment: This "talking to you phrase" had been mentioned by both of the girls on the bus too. They seem to feel that people are more friendly if they will talk to them about things other than the fact that they have to do the shopping. They will ask about family and they will ask how school is. The girls seem to feel that this is a more pleasing relationship with someone that they have to work for than someone who only talks business with them.

We went into the apartment building and rang the door bell. We were buzzed in and used the elevator to get to the floor where the lady lived. We knocked on the door and were greeted warmly and welcomed in. As we approached the door, Lois took out her sheet of paper, seemingly so that she wouldn't forget to write down all the things on it about the money and have the lady sign it.

Once we were in, the lady asked if we wanted to sit down and we sat at the dining room table. Her interaction with Lois was very pleasant, very cordial, and she asked Lois about how graduation activities were going. She asked Lois if she felt proud to be graduating. Lois said, Yes, and the woman said that she was sorry this might be the last time Lois did the intern work for her because she had done a good job.

Comment: This was obviously an example of what the girls meant by talking about things other than work. It was a sensitive moment for both of them, a sign of warmth between two human beings that transcended the task orientation of the job at hand.

Lois was very polite to her, responding in one word answers. Then they got to the tasks. The woman wanted Lois to do some shopping for her. She had written a list. It was very specific with brand names and the size of the package. She went through it very calmly and quietly with Lois, asking her if she understood each item. In a few instances she took a similar package out of her freezer or cabinets and showed it to Lois.

Comment: This was going so much on target like a well oiled machine -- the way Lois took out the form as the lady opened the door, the way the lady specified the items and showed examples. Both of them really know what they are doing.

After the lady and Lois had finished going over the list, we left and walked the 3 blocks back to the street we had come from on the bus and up 2 blocks to the supermarket. We discussed the internship a bit more. Lois told me that the philosophy was that no student and senior should become too close. In other words, they don't continue to send you to the same senior's home even if you get along and have a good relationship. The idea is to spread the students around to different seniors so that they can get to know people and do different kinds of tasks.

Comment: I recognized the value of this, although it was touching to see Lois and this woman so caring about one another. A good internship allows students to be exposed to many types of people. The interns get to learn how to handle others who are not so cordial and are less adept at explaining things.

Lois was very confident about finding the items in the super market as she consulted the list. She was careful to check the brand names and the sizes. We saw Patricia doing shopping in the same market for the person she was working for. She was a little more hesitant than Lois and less sure about what she was doing. She complained that she had a whole lot more on her list and said she didn't know where some of the stuff was. At one point she came to me and said that the lady said to get chicken breasts but the package says quartered chicken breasts. I told her that I thought that would probably be the same thing. Then she asked me what they mean by quartered. I told her it referred to the way the chicken was cut up. She said, Oh, and put it into the basket.

Comment: This was a good example of the kind of thing the interns learn from this work. Patricia was unsure, but was not afraid to ask. Hopefully, she would have asked someone else had I not been there.

One other thing Patricia needed help with was getting some cottage cheese. She found the brand but she couldn't find the size. I showed her how she should look underneath the large size because the smaller sizes are hidden under them. She again thanked me for helping her out.

At 2:30 pm Lois had finished getting the items and we went to the check-out counter. One thing the lady had told her, if the money was not enough (a $20.00 bill) then there were two items that she could put back. At the check-out counter the groceries came to $19.00 and some cents. So the lady had done pretty well estimating how much things would cost. We finished the shopping and Lois carried one bag and I carried another and we started walking back the 5 blocks to the lady's house.

While walking I asked Lois about her thoughts on being a student and worker. She said she had grown up in New York City and loved it. A few years ago her mother had decided to move to Florida and took the family there. Lois said she hated it there. She thought it was sort of out in the backwoods. She gave an example that there was a bus route line near the house but the bus didn't come regularly. If you wanted to be picked up by the bus, you had to call and ask the bus to stop at your stop. Lois arranged with the family to live with an uncle in New York so she could finish school where she was happier.

When we got back to the lady's house, Lois and I took the groceries out of the bag and the lady looked approvingly at each item saying that it was exactly what she wanted. She was also proud that she had estimated so well that the $20.00 was enough. Both she and Lois signed the sheet and Lois gave her the change. Again, the lady wished Lois well on her graduation and said it was nice knowing her and we left.

We had to wait 30 minutes for the bus back to the community center. Lois told me this had been a typical internship day. She said she makes almost $100 per month and more if she does double sessions. Back at the community center the supervisor carried out a sort of debriefing session, asking Lois questions about what had occurred. Then we left.

Conclusion

These three examples of work internships for students of AHS show much variation in setting, climate, and tasks. While some of the placements require a good deal of cooperative work upon which other people are dependent, others require the interns to work alone with little or no interaction with others. These variations follow the interns' stated preferences -- some enjoy interacting with supervisors or co-workers and others like to be left alone to do their work.

These interactions, and lack thereof, hold the same potential for conflict and cooperation that would be found in regular work settings. Job-related conflicts were not observed directly by the researchers, and conflicts that we learned about had generally been resolved by the internship coordinators at the campuses. However, survey results show that some students reported using conflict resolution and/or cooperative learning skills in the workplace. Since many student interns experience more than one internship site during their time at AHS, they have a variety of people and setting with which to practice these skills.

Unfortunately, the number of internship placements that are considered valuable for AHS students is decreasing. This was illustrated in this comment by the Principal of AHS:

> As far as internships go, some are great, they have trained the students to work and they have helped students to meet graduation requirements. But recently the internship is coming under more scrutiny. At times, no internship is better than an internship. The ones that are not good don't train the student to work, they might give them some vocational skills, but that's all. . .

At Campus C, where students are being encouraged to pursue more academic subjects that will lead to college admission, the value of internships is seriously questioned. The coordinator said:

> In the past [the internship] was to expose the students to work in a professional setting. (I say professional to distinguish it from the fast food type of job.) This did help to change the students, they came back from the experience with a better attitude towards developing career goals. Now we are getting away from internships. This is because there is not much employment promise to someone with just a high school diploma. Also, because of all the new state requirements needed to graduate, this does not allow occupational education majors to get enough credits to graduate if they have to do internships. We are pushing more of a college orientation.

In contrast, the experience with internships at Campus B has been more positive. That site will continue to develop and use those internships that have been beneficial. The coordinator said:

> The internship is very important for these reasons: (1) it develops the students skills to be a part of the work force. (2) It lets them seek areas they might take an interest in. They get a concept of what jobs entail and they get to know that different careers have many options. (3) It makes them responsible. It is supposed to be only for kids that are responsible, but sometimes kids who aren't responsible go through internship and it builds their responsibility, but the internship has to be one that supports that. Some are excellent and some are not.

Thus the future of the internship experience at AHS will be resolved at the campus level according to how the staff judges its worthiness in preparing students for future employment and its practicality in light of the increasing need for academic credits.

Some thought has been given to how the cooperative learning and conflict resolution training may assist in the situation. While not a substitute for on-the-job experience, the knowledge and skills gained from the training help students to analyze interpersonal situations that are likely to take place in the workplace. Their exposure to the training has helped them to develop a repertoire of words and actions that may be called into play when necessary in future employment, whether or not they have had the benefit of an internship experience. The Principal of AHS linked the potential demise of internships with the training in this way:

> The internships have the possibility, if they are good, to be a life changing experience. . . Some of them, frankly, are just a way for the internship site to get cheap labor. Truthfully, I think fewer and fewer are the good ones where they really give a good apprenticeship to the working world. When we see the bad ones we ask, What are we doing to these students? We ask, What will be gained? The value of the experience is definitely withering. What is important is not the vocational skills that they gain; it is conflict resolution and cooperative learning in the work place on the job. That is what we want.

Examples of Training Sessions

These six sample lessons, two from each site we studied, are summaries of the fieldnotes taken at various training sessions. They show a variety of training content and techniques. Number six is a training session that was used for reorganizing when training was not proceeding well.

The observations were made by five researchers. In order to present them here, we have summarized the material into a uniform style. Comments made by the observers and post-session discussions among the ICCCR staff have been edited into a conclusion section for each lesson.

Sample Lesson #1

Date: 2/28/90
Site: Campus A
Trainer: (Conflict Resolution)

Objective. The objective of the lesson was to have students explore some aspects of a conflict situation including needs, listening, and negotiation.

Logistics. This was a very small Careers class. Two males and three females were present. The teacher was present for the first few minutes, then she left the room for about 25 or 30 minutes and came back to rejoin the class.

Content. First the trainer asked the students to introduce themselves and state where they were doing their internship. The trainer then allowed for a brief discussion of how two students working in the same place have mixed feelings about the person they work for.

She then passed out a sheet of paper which listed the AEIOU behaviors of the conflict resolution program. She explained that A and E behaviors take you away from reaching solutions and IOU behaviors bring you close to solutions.

The trainer then got the students to discuss their personal experiences by asking if any of them had ever quit a job. Three students responded affirmatively. She allowed them to share the reasons. One student said that he ". . . was asked to do things he was not hired for, such as mopping floors." Others said they left for other personal reasons. The trainer summed up their discussion by identifying the many reasons people leave jobs. She indicated that some were negotiable and some were not. She then turned the discussion to negotiable situations.

Two students were asked to roleplay a boss-secretary conflict. Karen gave them the beginning of the conflict and they carried out the rest. The students used attack behaviors more than any other kind. After the roleplay she asked each to share their experiences of the roleplay. Both students felt the other was not listening.

The trainer then began to explain to students that the "key to negotiation is to find out the needs of both parties." Other students were then given an opportunity to roleplay. Out of this, one student raised the concept of compromise. The trainer explained why she preferred "win/win" situations.

The lesson ended with the trainer informing students that at the next session they would talk about what they disliked about their jobs.

Conclusion. The roleplaying was the key to the effectiveness of this lesson. It engaged the students, and provoked thought. It was also an effective technique to inform the students of the next sessions' topic. Not only does that prepare them, but it gives them something to look forward to.

Sample Lesson #2

Date: 4/4/90
Site: Campus A
Time: 9:30 - 12 noon
Trainer: Karen (Conflict Resolution)

Objective. Although the trainer did not state an objective, it appeared that her goal was to assess and review the students' ability to recognize and appreciate the elements of conflict. Keeping the students engaged in the lesson seemed to be another objective.

Logistics. This was to be the trainer's last class, since the term was coming to an end. The workshop schedule had been revised to accommodate an "Ethnic Lunch" in which students and staff ate foods of different ethnic groups. It is fairly common for the training schedule to be modified in order to accommodate a change in the school schedule.

When the class began there were seven students in attendance. Eight more came in late. The teacher began the class by making some announcements, and then turned it over to the trainer.

Content. The trainer began the lesson by asking the students to name something they remembered from one of her lessons. Student responses were: "How to listen"; "How to prevent a fight"; "How to avoid a conflict"; "How to speak my mind/express myself better"; "The good and the bad things about fighting"; "I don't know."

The trainer then gave a brief talk on personal conflicts. Students gave examples such as whether to come to school and, after some probing from the trainer, whether to smoke or drink alcohol. She then suggested some current movies as examples of conflicts. The first movie she suggested was a popular youth film House Party. She asked the students to identify the conflict and then the position and needs of each side. (The movie's conflict concerned a son who wants to go to a party and a father who wants to punish him -- due to a misunderstanding -- by not allowing him to go.)

The students seemed to enjoy and appeared to be engaged in the discussion. They identified the son's need to be treated with respect, to have fun, to meet girls; and the father's need to teach his son right from wrong; be obeyed, etc.

Do the Right Thing, another current film, elicited similar analysis and similar enthusiasm. The trainer made some attempt in the discussion of each movie to elicit from students solutions to the conflicts. In neither case was any solution really arrived at, although the students generated ideas about a solution to the second film's conflict. She closed the lesson by saying that there are situations in which conflict resolution will be very useful and other situations in which it may not make sense.

Conclusion. The main strategy the trainer employed in this lesson was to keep students engaged. She did this by contextualizing the discussion in their popular culture (using the two movies). She also kept them engaged by choosing not to push students to arrive at solutions if they seemed more engaged by a discussion of positions and needs.

Sample Lesson #3

Date:	2/12/90
Site:	Campus B
Trainer:	Beth (Cooperative Learning)
Group:	Eleven members of the staff were present

Objective. The objective of the workshop was to complete the written agenda while giving teachers an opportunity to learn about and discuss cooperative learning techniques and exercises. The agenda, as written on the board by Beth, was: (1) gathering, (2) checking the agenda, (3) cooperative learning [under cooperative learning were foundational skills, team teaching, and lesson planning], (4) evaluation, and (5) closing.

Content. The trainer began the lesson by explaining that the question for the day would be, "How has cooperative learning worked in the classrooms?" Indicating that it was a warm-up activity, she began with a "warm-up" activity in which teachers had to select the color paper which answered the question: "If today was a color, what color would it be?" Continuing with the activity, the trainer told the participants that sometimes students don't warm up this way and they can't identify with this particular activity. Therefore, she recommended that "with students you could have them pass on the first go round if they preferred. . . if they thought of something later then the choice of colors could go round again and they could pick something on the second go round." In the next exercise the trainer asked the teachers to break into dyads and discuss whether they used cooperative learning and the highlights and upsets of their day. Each was to take turns sharing, listening, and paraphrasing.

During the lesson and the different exercises, the staff raised many questions. Some include: "You have to be prepared for two of them to take the same color, don't you?" "How do you convince students that cooperative learning is a good thing?" "What happens if you paraphrase and a student doesn't recognize what you said?"

In most cases the trainer responded to the questions with specific suggestions and techniques. In some cases she allowed other teachers to respond. In others, she encouraged them to experiment in their classrooms without trying to answer certain questions today.

Throughout the lesson the trainer suggested alternative techniques and raised questions concerning the effectiveness of the techniques, such as: "How did it feel as a speaker in these groups?" and: "Some of your students might find it too long. . . As the listener, did you find it was too short or too long?" and: "How was it to paraphrase what another person was saying?"

Toward the end of the session, the trainer solicited some feedback on how the team teaching went. She also suggested establishing a buddy system among the staff. After buddies were selected, she asked the staff to "evaluate today's session. What would you say was helpful and what was good? What do you want to do next time? Today I left the time and the agenda fairly flexible." One teacher responded that she ". . . liked the pairs [dyads] and. . . also. . . the color activity to help the group warm up." Another teacher said: ". . . the group session today was valuable because it gave people a chance to get advice about the problems they were having in their classroom." Some teachers also requested more time for the topic of "helping one another."

Another teacher said she did not see the relevance of the handouts. The trainer indicated that they were from the Johnson and Johnson book, and said the feedback was useful.

The trainer then passed out another hand-out from the Johnson and Johnson book on lesson planning, but then looked at the clock and ended the session. Throughout the session the staff was engaged and participating.

Conclusion. Consistent with the techniques found throughout most of Beth's training workshops, she used the method of experiential learning as her approach to teaching the concepts of cooperative learning. Essentially, she allowed the teachers to experience different cooperative learning techniques by assigning them exercises which they could use with their students. She also conducted her training session in the way she would expect the cooperative learning teacher to teach a class. To make sure that nothing was missed, she commented on her technique and rationale and anticipation of problems as she went along. The effectiveness of this lesson is indicated by the extent to which the lessons she created raised the kinds of issues that would be raised if the teacher were teaching the students.

Sample Lesson #4

Date:	3/26/90
Site:	Campus B
Trainer:	Beth (Cooperative Learning)

Objective. This lesson had several objectives. One was for the teachers to learn by experiencing some of the cooperative learning exercises in which they would be asking their students to engage. Another was to facilitate teacher understanding and exploration of the process of soliciting feedback from students.

Content. The lesson began with the trainer demonstrating a technique for getting a class settled and focused on an exercise. She offered them an alternative between singing a song or talking in dyads. Without commenting on her technique, she gave the not-focused class of dyads the assignment of discussing the kind of day each had.

She then asked the teachers to share with the class, one at a time, the highlights of their day. One teacher shared that he ". . . got one student to do something that he had never been able to do before"; another shared that she felt the pressure of the semester being ". . . almost over"; another said that her ". . . students worked productively, independent of her."

After the teachers reviewed their day, the trainer reviewed the agenda and gave teachers an opportunity to have input. There was no response, with the exception of one teacher who let her know he had not been paying full attention. She then moved on to distribute some evaluation forms which she said could be used to help the teachers get "feedback" from their students, "like I just got from you." This was an example of her allowing teachers to internalize the concepts in the training without necessarily lecturing about them.

After a brief review of the forms, the teachers were asked to break into dyads and discuss "how they might get feedback from their students." The trainer instructed the groups to assign roles among themselves of a spokesperson, an observer, and a recorder. The teachers seemed to take the assignment very seriously and were focused on the task. After a period of discussion, each group was asked to sum up three ways of evaluating, which they next shared with the entire body.

One group came to the realization that "informal and formal evaluations of the students go on regularly," concluding, however, that there was still a need for more formal evaluations. Another group recommended weekly evaluations. The trainer stated that she wanted the group to be aware that there was a difference between reflection and evaluation/feedback.

After some discussion, the trainer asked each of the individuals in the "observer" role in the group to evaluate and report on the group's performance of its assignment. Some of the observers were critical of their group, and others commented on the difficulty of evaluating their performance.

The trainer then asked the group to review the goals of the day's session. In this way she was getting the teachers to mirror the process she is looking for them to adopt in their classes.

After hearing from the groups, she then briefly lectured on important aspects of evaluation. This prompted a thoughtful discussion of process.

The teachers were engaged throughout the lesson, although it was evident from the yawning that they were tired. (The workshop began at 3:16 pm after a full day of teaching.) The workshop ended with the staff reviewing the meeting time for the next workshop.

Conclusion. The trainer's approach to teaching her cooperative learning workshop can be described as experiential, or perhaps even "the back door" method. By that is meant that she does not spend much time in the beginning of the lesson describing concepts to the teachers. Rather, after briefly stating what the concept is, she facilitates internalization of the cooperative learning concepts by engaging the teachers in an exercise that allows them to experience the concept. For example, she taught the teachers about the importance of roles in a group (spokesperson, observer, recorder); how to get students to evaluate their own performance (having the observer report on the group's performance); and facilitated a thoughtful discussion of evaluation and feedback approaches. This was not done by lecturing but by having the teachers participate in an exercise.

Sample Lesson #5

Date:	10/25/89
Site:	Campus C
Trainer:	Sarah (Cooperative Learning)
Staff Present:	13

Objective. The objective of the lesson, as described by the trainer, prior to the training, was for the teachers to learn ways to solve some of the problems that had come up in the course of using the cooperative learning techniques.

Content. The trainer opened the training by explaining that they would discuss some of the concerns she had heard the faculty express, and then they would do an activity which consisted of two parts. Some of the concerns she raised for discussion were: (1) lesson plans and the dilemma of whether to plan a lesson as a cooperative venture or an individual one; (2) how to address the fact that many students come late and cooperative group exercises require full participation; and (3) some students are not adept at teaching other students and may need a "crutch" in order to know how to get something across to another student. The trainer suggested methods and techniques for addressing each of these problems.

Then the trainer broke the workshop into smaller groups. The assignment, as written on the board, was to (1) make a list of practical ways that you can structure outcomes, means, and interactions; and (2) produce a visual that explains positive interdependence.

The most salient feature of the workshop was the fact that the trainer used the workshop itself as a model of how cooperative learning could take place in the classroom. She conducted the workshop as the teachers would conduct their classrooms, sharing her pedagogical reasoning as she went along. For instance, before making the transition from her initial talk about her concerns for the activity, she said that adults are able to listen for about 12 and 1/2 minutes before they need to stop and process what has gone on. She reminded them that students can do this for much less time than adults and then said, "Now my 12 and 1/2 minutes are up. . ." She then moved the teachers on to the next exercise, which was to break up into partners. (Again, she shared her pedagogical insights concerning how students experience this activity change.)

The fact that the trainer walked around and interacted with groups carrying out the exercises provided an opportunity for teachers to raise specific questions about the exercises on the spot. For instance, they asked how often they were expected to do activities like this with the students since they are so time consuming. There were other questions as to whether the students could manage an exercise with so little structure. The trainer made a continuous effort to create an atmosphere of openness and trust between herself and the teachers.

Conclusion. The trainer used opportunities to be open about her own feelings in an effort to set an example. For example, she opened the session by commenting to the group about her nervousness, because an observer was in the room taking notes. She consistently responded with empathy to teachers who expressed concerns, doubts, or skepticism. Teachers repeatedly expressed concerns about how the activities would work with their students and she responded by suggesting specific exercises or referring to the Johnson text as a resource.

Evidence that the lesson was successful was twofold: (1) they participated in the training activities and (2) their conversation related the training to the work they would be doing in their classrooms. For instance, teachers in small groups raised questions and insights such as: "Let's figure out how we would do this if we were in Family Groups"; and "With one person not doing their job in this, the group can't function." However, during the lesson teachers raised questions as to whether the workshop was a useful way for them to spend staff meeting time. The trainer responded that it was possible to negotiate a rearrangement of the schedule.

Sample Lesson #6

Date:	12/11/89
Site:	Campus C
Trainer:	Sarah (Cooperative Learning)
Staff Present:	4 staff members

Objective. The objective of this lesson was presented by the trainer to the teachers as a list of items to be covered in the day's session: (1) What's going on in Family Groups; (2) the training for next cycle; and (3) what training the teachers feel they needed.

Content. The trainer raised some of the problems and concerns she recognized in the training and then allowed the teachers to lead the discussion from there. Teachers complained about various concerns they had about the usefulness of the training program given their working conditions. Some wanted the trainer to do another production with them as she had done the previous year. One teacher said he did not have time to facilitate the process of cooperative learning so he just forces students to work together. The trainer responded with suggestions for how they could make it work for them. For example, she suggested that only ten minutes of process work every other week was enough. Other topics discussed were the students' approach to violence and using Family Group as a place to teach dispute resolution. There was a real sense that the teachers felt satisfied with her responses to their complaints and the lesson moved forward toward addressing the problems.

The next topic was the workshop schedule for the following cycle and the topics for some of these workshops (trust, finding causes of violence, etc.). Suggestions were made by the teachers concerning workshop topics that would address their concerns. A suggestion was made and agreed upon that Family Group works best if it is thematic, ". . . otherwise it is unorganized and unfocused." The consensus was that ". . .with all of the Family Groups working on the same topic, teachers will be more likely to bring up issues that come up in Family Group at staff meetings."

Conclusion. This was an attempt by the trainer to reorganize the training. She made a valiant effort to do team-building and create a cooperative relationship between herself and the teachers. She empathized with their problems, needs, and feelings. For instance, she cited the ". . . fact that training takes up too much time in staff meeting. . . " as a problem she recognized. Her sensitivity to the teachers was exemplified in the way she let them initiate the discussion concerning problems.

Attendance at this workshop was low, as was the general level of enthusiasm toward the project. The project needs to be "sold" to the teachers again. Yet, there was evidence of the effectiveness of this session, not particularly in teacher attitudes, or the energy level of the room, but in the fact that despite the low level of enthusiasm toward the training, they were able to produce a schedule of workshop topics for the school year addressing their concerns. It is also very significant that they decided upon a strategy (having common Family Group themes) that was designed not only to facilitate more effective Family Groups but also to facilitate greater participation on the part of teachers in their staff meetings and, presumably, their workshops.

Case Study of Student Life at AHS

On three occasions during the 1989-90 school year, one researcher spent the day (8:45 am - 3:00 pm) following the schedule of a student at Campus A. The student was Cameron (a pseudonym), a black male student in his final year at AHS. This case study is presented, not especially to focus on the student, but in order to give the reader a detailed look at the setting, climate, and academic life at AHS. In using this particular day, November 11, 1989, we have attempted to illustrate the typical day of a student; however, the fieldnotes have been summarized and some material has been added to them from other information we had about the typical day at Campus A.

9:00 am - The first period of the day, A slot, was to be a history class in room 170. As I went in, there were seven females and seven males attending (including Cameron). The teacher was a white male. The class was sitting in a U-shape in the long rectangular room. Some students were sitting beside the blackboard so that the teacher frequently had his back to them.

The teacher gave the students a handout on Frederick Douglass and asked them to read it. While the students were reading, two more females and one male walked in. After about fifteen minutes, the teacher asked questions about the reading. Many students participated and either put up their hands to answer or just spoke up. The class was quite interactive and engaging with most of the students participating.

After this discussion, the students were asked to write a paragraph on how Frederick Douglass would view black people today. The students started writing. Most appeared to be focused on the task at hand.

After some time the students volunteered to read their paragraphs. One student read her poem aloud. Other students volunteered to read what they had written.

9:50 am. B slot was a Spanish class in room 160. The class was initially very noisy. Most of the students were shuffling around and talking quite loudly. The teacher, an Hispanic female new to AHS this year, kept telling the students to settle down and finally yelled, "Process!" ("Process" is the word used to get students to think about what is going on and to change their way of behaving if it is not adding positively to what is supposed to happen.)

Students were still walking into class ten minutes later, but they were settling down more readily. The small room was crowded with 14 students, six black females, five Hispanic females, and three black males. Laughter could be heard coming from one side of the room.

Four black females were sitting together in the back. They were talking a lot and laughing. The teacher told them that she did not want them to sit together in her class the next time. She passed out some books for the students to study and asked them to do some written classwork. As they did, she circulated around helping the students. Many students asked their neighbors for help with the work. Although cooperative learning was not mentioned, the students obviously felt comfortable helping each other and asking for help.

Two black females in the back were just sitting and talking. One of them asked the teacher to help her. The teacher did not go right away; she helped some other students first. The student complained about this. The teacher explained that she thought the other student had a smaller problem so she wanted to take a look at that first.

Comment: I think that the teacher was irritated by the students' being disruptive by talking too much. She did not respond to the student right away due to this reason. This is a new teacher and she may not know how to handle the students very well. The girls in the back did not seem too compelled to finish their work or listen to the teacher.

The left side of the room was very orderly. Three males and two females were sitting there doing their work. Frequently there were disruptions in the class by some students walking in and out of the classroom. The teacher kept urging the students who were talking and giggling to work. Some students were popping chewing gum.

One student walked in and asked for another student. One of the students sitting in the back said, "Get out." It sounded rude. Another student walked in and wanted to talk to one of the disruptive girls. The teacher refused to let her go out. The lesson ended with most of the students finished with the work. At the very end, the teacher handed out a list of Spanish adverbs and translated it for the class. All speaking in the class had been done in English.

10:40 am. C Slot; Personal Resource Management; room 130. This was a large class of ten males and ten females. The students were sitting around four large tables on one side of the room and at three tables on the other side of the room. The teacher, a black female, started the class by talking about needs and wants. She kept listing these on the board and the class gave her examples of needs and wants. When one student kept answering a lot, the teacher directed her attention towards other students, encouraging them to talk and participate.

All students were quite engaged and seemed to be participating in the class. When the topic of values came up, one student expressed his opinion against abortion and pre-marital sex. Another student (female) said, "That's not you at all." The teacher kept encouraging the students to express their opinions. A tall black male kept putting up his hand. He was asked by the teacher to wait until some of the less talkative students had a chance to talk. Finally, she let him say what was on his mind. He said that each person had to make his/her own values.

Immediately following there was a discussion on goals. Some of the students mentioned wanting to go to colleges such as Harvard, Howard, and Stony Brook (State University of New York). Other goals mentioned were passing classes, owning cars, and owning houses in the suburbs. The link between goals and values was discussed. The conclusion was that goals are affected by values. Most students appeared to be paying attention. The teacher began talking to the students about attending college. Everyone was listening very quietly but they anticipated the end of the class when it was about to end. They began collecting their books. The teacher told them to sit still until she was finished. They sat down for another three minutes or so.

11:30 am. D slot; room 130. This was a class called Physics in Music. Seven females and three males were present. The students sat around the large tables in the room.

The teacher, a white male, gave the students a handout on the movie Amadeus and briefly discussed the part of the movie they had already seen. After this, he turned on the video machine and left the room to meet with the coordinator.

The handout gave a brief background on the contents of the movie, but had nothing on it about physics. For the rest of the time the students watched the movie quietly.

12:25 pm. Lunch. I asked Cameron where he was going to have lunch. He told me that he would be in the lounge (lunchroom). In a few minutes I went in there and saw him sitting by himself.

Very loud music was playing in the lunchroom. Students were either lined up to get their lunches or were sitting around by themselves. I noticed that most of them were wearing casual clothes. They were in jeans and sweaters and the color black appeared to be quite popular. Most of the girls wore big gold hoop earrings and lots of gold rings. Some boys were wearing gold chains. Many students, males and females, were also wearing hats and caps. Some students went into the adjacent room to eat. Some sat together and talked while others read books or magazines.

After most had finished eating, about twenty minutes were left. At about 1:00 pm a card table was set up and four students started playing cards. One white male sat alone and slept. He is one of the few white students here. I have seen him alone on other occasions as well.

When I left I saw three students were sitting in front of the coordinator's office talking. This happens quite frequently during lunch hour. Another batch of students was watching T.V. in room 140. Two students were in one of the computer rooms doing some work at the terminal.

There was quite a relaxed atmosphere in the students' interactions with teachers. In the lunchroom, I had noticed that one student had playfully punched a male teacher and the teacher playfully punched him back. Another group had joked with a teacher about seeing someone on 42nd Street. Although the coordinator's door was closed, one student just knocked and walked in to get her book bag. Students can sit and eat anywhere they want in the school. They take their food into the classrooms and into the reception area to eat.

1:30. E slot. This was supposed to be Math class, but Cameron did not go there since there was a special meeting being held for students who wanted to get into the Executive Internship program. The director of that program had come to give a presentation. The Careers teacher had coordinated this presentation held in room 153 (one of the long computer rooms).

Twenty-two students, nine females and thirteen males, were present for this meeting. It began with the director explaining the Executive Internship program to the students. They were very quiet and listened to what he had to say. Then two students who had been interns in the program talked about their experiences. One said that at first he felt like he was treated like dirt at his worksite, but then he realized that he was there for himself and for a future. He said that if a student has problems at the site, the director makes himself available to talk about it.

The other student said that as an intern he was learning all about bookkeeping and accounting. He said the work was not all fun, but ". . . that's life in the real world."

All the students seemed to be very interested. Many of them raised questions about internships in specific areas. For example, one male asked about internships available in electronics as he wants to become an electrical engineer. One female asked about working in the area of medicine. The director said he would be coming back on the 14th and the 19th of December to talk to students individually about their internship interests.

The meeting ended at 2:00 pm, 15 minutes before the E slot class is officially over. Many students left, but about ten students went up to the director to talk to him.

2:15 pm. F slot. The next class that was on Cameron's schedule was in room 143. No one showed up there so I asked one student where the class was. It was being held in the lounge for a special presentation. I went to the lounge, but the teacher told me Cameron was no longer in her class. Apparently, his schedule had been changed, but that was not reflected on the written class schedule. At this point Cameron walked into the reception area. He told me that he was in math class being held in room 153, but that he was going to be late since he was trying to get his internship application filled out and was having some of his teachers sign it in the appropriate places.

The math class was taught by a white female. Five males and four females were present in the class. The room was small and the chairs and desks were placed in rows. The teacher was lecturing on math application issues involving bonds, premiums, and yields. The students were quiet and appeared to be paying attention. Every now and then the teacher would ask a question and students would put up their hands to answer. At one point a student spoke up without raising his and and the teacher told him not to interrupt. After lecturing she gave the students some problems to solve. The students worked individually and the room was very quiet. From time to time I could hear some whispering but not much. The teacher walked around the room helping the students. After a while she went back to the board and talked about percentages. She put up some examples on the board, then she gave the students more work to do.

Overall, the class was very quiet and somewhat formal. The students raised their hand to speak and worked individually. Cameron walked in at 2:50, ten minutes before the class ended and told the teacher he had been applying for the internship program. At three o'clock, as the students were leaving the school, there was a lot of noise in the corridors. The noise seemed to be the general hub-bub of leaving school for the day.

Conclusion

This summary of a day in the life of an AHS student demonstrates variation in several areas of school functioning. First, it shows a range of academic classes and events students attend as part of their life at the school. The ways in which the building is utilized for special presentations and at the lunch hour points out the value of having a small informal school with a relaxed atmosphere.

Secondly, it can be seen that some of the themes mentioned frequently in the discussion of the training have obvious consequences for the school in general. For example, this description illustrates how absenteeism and tardiness that have been discussed as detrimental to training also have negative effects on classroom climate and the success of lessons.

Thirdly, the variation in the classroom activities and climates shows that the students have the opportunity to observe and interact with people in many behavioral modes. Some of these are quite cooperative and others are individualistic or competitive. Although distinct episodes of conflict were not recorded in these specific observations, the types of interactions that characterized AHS are important to the way the conflict resolution and cooperative learning training was accepted and integrated in the school.

Classroom Observations

These two observations of classroom lessons show how the training in cooperative learning was used by teachers. They show examples of successful and difficult episodes in implementing cooperative learning with AHS students.

Classroom Observation #1

Date of Observation:	June 4, 1990
Time:	10:00 a.m.. to 12:00
Site:	Campus B
Purpose of visit:	To observe cooperative learning in class

I walked into the Forensics Class at 10:10. It was a double period class taught by two teachers. One teacher told me the students were doing a short "Do Now" assignment to get them in order. There were a number of students in the class, all of whom were working quietly, and, it seemed, diligently at their desks.

Prior to the beginning of class one teacher explained to me that this was the second day of a three day cooperative learning (CL) lesson. The first day she had the class form groups of four and asked them to: 1) make up a crime story; 2) create clues connected with the crime; and 3) develop leads to a suspect. Over the weekend the teacher had typed the students' creations.

Today she asked them to draw the crime scene they created and include clues that would lead investigators to three suspects. Tomorrow they will exchange the crime scenes each group created and determine the suspect based on the clues left in the drawing.

Soon the teacher said to the class, "Okay, change seats for cooperative learning in the groups you were in on Friday." The students complied immediately. As the teacher was beginning to explain the day's lesson the coordinator walked in, brightly sunburned, and said aloud to the class, "I'm just coming around to every class so that you can see that I went to the beach this week-end." He joked with the students for a minute more and then walked out.

The teacher continued to try to get their attention to explain the day's lesson. She said, "I want you to show me what the scene would be that the police come across . . . Just put in all the clues - go to it." At about 10:22, almost all of the students were working studiously in groups. In one group a male student was staring into space with his arm draped around the female student next to him. She, however, continued to work.

One teacher walked around to each of the groups reminding them that she had typed up each of their stories (some groups had come up with more than one story the previous day) so that it might be necessary for them to select one story from among several created by the group members. At 10:30 the other teacher, who had been working quietly by herself in the back of the room, left. I did not see her again for the remainder of class.

The other teacher walked over to a group who had called out to her. She asked if they had three suspects and evidence that connects each of them to the crime. The students answered that they would have to change the whole story in order to do that. She asked them to work on it a bit more by thinking of someone else who would have the motivation to kill this person. One male student began to justify why it would be impossible to come up with another scenario. Meanwhile, a female student was staring at the diagram, apparently thinking about how to fulfill the assignment.

At another table were two female students who were absorbed in the assignment. They conferred with the teacher about ways they should diagram the crime. She offered them suggestions.

At another group a male student was drawing a sophisticated pencil sketch of a murdered male. Although the drawing demonstrated the young man's excellent artistic talent, it did not contain clues. Another student sitting diagonally across from the student who was drawing said, "He's weird." The group laughed gently at this remark.

Comment: I do not know what prompted the young man to say this except that the drawing was perhaps overdone and different from what the rest of the students in the class were doing.

The teacher then went over to a group and looked to see whether their diagram matched the story they had created. She came and showed me some of the students' stories she had typed up over the weekend. Then with another group she discussed the consequences of not participating in the completion of the assignment. It seemed she was concerned that the student who had his arm around his friend was still not contributing to the group's work. She said that the group would not get credit for doing the assignment unless they all work on it. She warned them that this would be one of the assignments she would be evaluating when she determined their grade for the cycle.

At about 10:50 I looked up to see two students standing near the doorway videotaping the class. (I assumed they were from the special Videotape Class which is a funded program at Campus B.) Moments later they walked further into the classroom shooting the class from several different angles. They were there for several minutes, but neither the teacher nor the students seemed affected by their presence.

The same male student who was not participating in the assignment was asking others if they had a nail cutter. He seemed unaffected, at least outwardly, by the warnings the teacher had given. I thought that perhaps either he was at a loss as to how to contribute to the group or that he was acting out in some way.

Near 11:00 am, the time the class usually has a break, students as a group were definitely getting restless. However, some groups and some individuals continued to work steadfastly at the assignment. I went over to talk with a group comprised of three males and one female. One male was drawing the crime scene. I asked him what he was doing since it looked as if he was making a calendar. He answered, "Read this," (showing me the crime story they had created). The story was, I thought, very violent. It described how the victim had been dismembered and decapitated. I told them (because I thought that to not comment on their work might be interpreted as a negative evaluation of it) that I thought their story was good. It reminded me of what I heard on the local news regularly. The student concurred with my last comment.

I saw one student from another table go to help someone from another table with his diagram. It was, of course, a very cooperative gesture which went along with the intent of the CL lesson. The problem, as the teacher pointed out to them, was that one student was giving away the clues to a member of another group that would later try to solve the mystery.

I asked a female student whether or not she not like the crime story her group had created. She answered that she liked it, but that she already had done her part, which was to help make up the story. She said she was just waiting for him to draw it.

At 11:00, the teacher called out to the entire class, "Okay people, listen up. C'mon people settle down." She said that the next day they would make copies of their work so other groups could solve their crimes. She asked them to take no longer than five minutes for the break.

When the class reconvened the teacher went to one group of students, looked at their work, and said that they were the only ones in the class not working as a group. She asked for an explanation. The one student who had continuing to work throughout the break said, "They won't work." The teacher told them they would not get credit, to which the student replied, "I'm not getting credit for doing this. I am wasting two hours!" The student who had asked for the nail cutter, who was in the same group, returned from break. The teacher reprimanded him for returning late and for not participating. The student said that he had been participating: "We are suggesting -- she's writing." The other two students in the group began laughing. There was a sense that the class had not gotten underway. The teacher said firmly, "You must work together to get credit . . . "

In general, the students were not as "into" the assignment as they seemed in the first hour session. In one group the male student who was so interested in drawing was sitting by himself. At another table a female sat by herself reading a magazine. When I asked her what she was up to, she said about her assignment, "We've finished. And we aren't going to exchange crimes until tomorrow."

The teacher showed a bit of frustration with the students' attitude. To some students who were having problems coming up with clues she said, "Stick the sole of your shoe up here," pointing to the chair. She showed how different shoes leave different tracks and that these tracks are frequently clues for finding who was in the room when the murder was committed. Only a few of the students continued to stay focused on the assignment.

The teacher continued to try to get the students to recognize potential clues for their stories. One student said in an exasperated voice, "This is too much." The teacher tried to get students to say why they did not like the assignment. She told them that it was a major project for this class. While talking, she was also trying to take attendance.

I went around for a last time (it was getting close to twelve) to see if I could engage the students in conversation about the work. The three female students who were working together said out right that they liked the assignment a lot. At another table, a male student told me that he did not like the assignment because the subject matter reminded him of when he was in jail. Another group told me they liked the assignment.

The teacher gave one last instruction. For homework the students were to write a thank-you letter to the medical examiner who had come to speak to them. She asked them to mention in the letter three things they got out of his lecture. She made sure they handed in their assignments before dismissing them.

Classroom Observation #2

Date of Observation:	March 8, 1990
Time:	11:00 a.m. to 12:00
Site:	Campus C
Purpose of visit:	To observe cooperative learning in class

This was a class in Fundamental Math that the teacher asked me to observe. The last time I was here he was testing the students so I didn't get to see how the class was conducted.

The teacher introduced me to the class and told them that Teachers College got AHS going with the cooperative learning which would be done in class. He returned an exam to the students and instructed them to write corrections for the questions they had lost points on. He told them to help their group members. The groups have names.

While the groups were working, the teacher called the students up one at a time for mid-cycle evaluations. They could receive a question mark, which means failing; a check-question mark, which means borderline; or a check, which means passing. This teacher does not give check-plus, which some teachers do.

At table A, a male student was staring off into space and a female student was working. (Speaking to the teacher in the office later, I found out that the male is a special education student.)

At table C, all the students were working. At table B, the teacher told two female students that one of the male students needed extra help because he had been out of school for a while. He then told another female student, who had been sitting alone, to join them.

At table D, one female student was upset. She had failed the test. The teacher told her, "It "doesn't matter, the important thing is to learn from it." At the same table, another female student didn't understand a problem involving rounding numbers. The teacher gave her a couple of hints, but then told the group to talk about it.

One student told the teacher that he had made a mistake in grading her test. The teacher said that if everyone in the group agreed with her that he was wrong, he would come back and look at it.

At table C, a male student told the teacher that he had done his best on the test so there was no point in his working on it further. The teacher told him he could still learn from it. The student asked if he could work with me on it, but the teacher told him to work with his group.

Comment. It was clear to me that the student was trying to get out of working with his group. At lunch time the teacher told me that the student is a special education student.

The teacher began calling students up to his desk for the evaluations. Three of the female students at table D were working together on the test. The other was polishing her nails. After a few minutes, she began polishing the nails of one of the students who was working well. During this, other students continued working on the test. Two of them were wearing Walkmens.

Next, the teacher talked with a student who had been the first to finish the test. She had been doing well in the class previously, but now was having trouble.

In another group, one female student was explaining an answer to a male in her group. She had been explaining to the others quite a bit. The student who had been first up for her evaluation was still sitting alone.

The teacher then met with a male student who he said was improving a lot. His manner was friendly and encouraging to the student. Next up for evaluation was a girl to whom the teacher spoke very quietly. He said, "It seems like sometimes you tune me out." He managed to make this sound like an expression of concern rather than a reprimand.

At table C, all were still working. They seemed upbeat and lively as they worked together. Table B was quiet, working independently. The students at table D were mostly socializing, although one member was working a little and another was sitting and working alone.

The teacher met next with the female student who had been polishing her nails. He spoke to her about test anxiety. He told her that he used to be paralyzed by it, and that his solution was to "study like a maniac." He told her several times that she is "not alone." When she returned to her table, she sat down and started working for the first time during the period.

The teacher met with another female student asked why she had so many absences. She said she had to take her son to the doctor. He told her that it was a valid excuse and she should be bringing in notes about it so she isn't penalized for her absences.

At 11:30 table B was working quietly. Tables C and D were working more interactively. The teacher called one student up for a second time. One student went over to table C to check an answer with them. She asked two members of the group and was very happy with their response. She came back to her table saying, "I knew I was right all along."

The teacher announced to the class, "If you're finished, feel free to jump into another group to help." They asked each other if they had passed the evaluation.

Comment: When one female student was asking questions of another female student, it seemed as though the girl was willing to try to help. She started to look at the paper, but the other girl immediately moved on to a third student. It is perfectly possible that the student had the correct answer to the question, and the marked tests from the teacher would reflect whether or not that answer was correct. It would seem, then, as though it were a matter of status: you can only help me if you passed.

Table C was now finished; a member of that group was over at table A. Another student was sorting out some papers from her bag as others continued working.

The teacher was telling a male student that he had just copied the answers (rather than finding out from his group members how to do the problems). The teacher said several times, "This is worthless, worthless." After a while he told the student to finish it for homework, to which the student responded, "You think I can do better than this?"

Next the teacher met with the student who was angry at him for taking off points on a question on the exam. They went over the problem and she saw what she did wrong. She smiled. The teacher told her she was "doing great." He asked, "How's it going with your group?" She shrugged and he told her that she was in the best position to help.

As the class ended the teacher announced the homework and everyone in the class stopped working.

Chapter VII: Social Psychological Consequences of Cooperation and Conflict Resolution*

Two analytical objectives are embedded in the integrative evaluation of the intervention programs at Alternative High School (AHS). The first objective is to reach an understanding of the processes by which these interventions affect students in terms of the social psychological and educational outcomes. This is the theory-testing component of the analysis. The second objective is to investigate whether the intervention(s) at each of the campuses yielded effects. If the conceptualized relationships are supported by the theory-testing, an effective implementation of the intervention(s) would lead to the social psychological and educational changes hypothesized about the relationships between these changes and the intervention(s).

As described in Chapter II, the intervention program was based upon Deutsch's theory of cooperation and conflict resolution. In addition, previous research in the areas of social support, health, achievement behavior, self-evaluation and self-concept is also incorporated into our evaluation scheme. If these theoretical guidelines are valid, they should be confirmed by the empirical evidence we gathered throughout the course of our interventions. This confirmation or validation process may be viewed as the theory-testing component of the evaluation. Statistically, it is a process of causal modeling.

However, given the nature of the intervention project as a large-scale field study, the confirmatory analytical process is inevitably contaminated by extraneous factors introduced through the processes of sampling, implementation, and data collection. Thus, rigorous statistical procedures must be employed to control for the contaminations. This necessitates that a latent-variable-modeling approach be used for testing the guiding theories.

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* This chapter was prepared by Quanwu Zhang.

Since the latent-variable-modeling approach is used in our theory-testing, the effect analysis correspondingly follows the same procedure. Thus, the entire evaluation process presented in this chapter is treated by LISREL techniques.

There are several advantages of using LISREL in our evaluation analysis. First of all, LISREL and related techniques such as EQS, CALIS, COSAN, and LISCOMP, etc. are the only computerized statistical methods which can take measurement error into account. Traditionally, variables in an analysis are treated as error free. The LISREL approach separates measurement error from the latent variable and estimates the error explicitly. It thus produces more accurate parameter estimates than the traditional methods.

Secondly, LISREL accommodates a large number of variables in one analysis. As a consequence, the intricate theoretical relationships among independent variables, intervening variables, and outcome variables (which may also function as the independent or intervening variables at the same time) may be tested as one cohesive model against the data.

Third, LISREL gives explicit estimation for both direct and indirect effects among variables. This allows us to examine the real dynamics with a fuller picture of how a desired outcome is induced by a group of relevant factors.

Within the LISREL framework, the results of the effect analysis are presented as a mean structure profile. As in an ANOVA, the relative differences between means across groups on a given latent variable are the indication of effect sizes. Statistical inferences may be based on the significance tests for the mean differences or, more intuitively, on the extent to which the mean structure profile fits the expected effect pattern implied in the research design. In fact, ANOVA, MANOVA, and regression analysis are simply special cases of the LISREL approach.

Methods

Design of the Causal Modeling

A general LISREL model has been constructed to test the conceptualized relationships between the interventions and the outcomes of interest. Based on Deutsch's theory of cooperation and conflict resolution and previous studies by other researchers, the model focuses on the effects of interpersonal relations -- represented by social support and victimization -- and on a student's self-esteem, locus of control, mental health, physical health, and academic achievement.

Due to technical reasons, we have to keep the model at a manageable size so that it may be algebraically identifiable and practically estimable. Thus, this general model is restructured into two models: Model I and Model II. Model I contains social support as the intervening factor between the interventions and the outcomes; Model II sets victimization as the intervening factor. In addition, we have incorporated the factor of school crime into Model II since it is theoretically associated with a student's victimization.

To control for confounding effects, the variables of self-esteem, locus of control, mental health, and physical health measured prior to the interventions will be used in the models as covariates. In so doing, we will not only separate those effects which are due to a student's previous psychological or physical state rather than our interventions, but also demonstrate the stability of those psychological or physical characteristics across the time between the pre- and posttest.

> The computer program of LISREL 7 (Joreskog & Sorbom, 1989, VAX/VMS version) has been used to analyze these two models.[1] The improved features in LISREL 7 allow us to estimate the measurement structure between manifest variables and the latent variables and the causal structure among the latent variables simultaneously.
>
> A number of issues may be encountered during the analyses regarding the fulfillment of the statistical assumptions of LISREL. The estimation procedure is the maximum likelihood (ML) method. The fitting function of this method derives from the multinormal distribution of the observed variables. When the multivariate normality assumption is fulfilled, the ML estimators are consistent and asymptotically (with a large sample) efficient. The model evaluation statistic, chi-square, will also be correct.

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[1] Throughout this chapter the more technical discussion relating to LISREL is single-spaced and indented. The less technically inclined reader may wish to skip this material.

The violation of multinormality does not affect the consistency of the ML estimators of the population parameters. However, excessive kurtosis ("fatter" or "thinner" tails than the normal distribution) usually eliminates asymptotic efficiency. In such cases, the estimated asymptotic variance-covariance matrix and the chi-square estimate may be inaccurate (Bollen, 1989).

Table VII-1 shows the summary statistics of the observed variables. The values of skewness and kurtosis for most variables are around zero, except for "Pdrugs," "Pweapo," and the last three. The last four columns indicate that these variables are heavily concentrated at the left end of the scales, which suggests that these variables may be censored below, i.e., these measures may not be sensitive enough to capture the differences among individuals at the lower end of the scales. Assuming their corresponding latent variables are normally distributed with unknown mean m and standard deviation a, the normal inverse transformations were employed for those together with other censored variables; in addition, both polychoric correlations and canonical correlations were computed for them by PRELIS. However, the resulting overall correlation matrices failed to be positive definite. Therefore, the original untransformed covariance matrix was used for the final analyses, which may require that caution be taken in interpreting the analytical results.

Another factor which may drastically affect a chi-square estimate is sample size. Thus, when the number of missing data is large, even if the normality assumption is met, the chi-square can still be quite off. Table VII-2 contains the pattern of missing values on the observed variables we used in the models. Only 13 cases have complete information on every variable. There are 536 cases missing 30 values across the variables used. This large concentration of missing cases is due to the fact that about two thirds of the students who took the prettest did not complete the posttest. Thus, students who took only the pretest would have at least 30 missing values, which corresponds to the number of variables from the posttest used in the analysis.

Given a substantial number of missing cases and missing values in the data, the effective sample sizes for Model I and Model II are relatively small. To prevent drawing conclusions based on unreliable estimates due to sampling fluctuation, we have employed several partial models to cross-validate the results from the general models.

Design of Effect Analysis

Model III is an estimation of the baseline of the factor structures across the three campuses among the intervention and the interpersonal relation variables. This model includes three separate factor structures for the three campuses respectively. The function of Model III is to give a comparison of how the three campuses differ in terms of the patterns of associations between changes in one factor and another. Strong associations between the intervention variables and the interpersonal relation variables are a suggestion of the effectiveness of the intervention(s).

Model IV was built as the main measure of the effectiveness of the interventions per se. According to the design of the intervention, the three campuses received different training programs. Campus A received only conflict resolution training, Campus B received training in both conflict resolution and cooperative learning, and Campus C received cooperative learning training only. From the design we expected that the mean structure profile of the variables in Model IV would differ accordingly across campuses if the interventions were successfully carried out. Only post-data will be used in Model III and Model IV.

A Check for the Potential Systematic Missing Cases

To determine whether the intervention effects could be accounted for by the differential mortality from the study, a series of t-tests have been conducted on the 17 variables from the pretest for two groups--the group which took both the pre- and posttests and the one which took the pretest only (Table VII-3a). Of the 17 tests, only one test yielded a t-value of 2.56 with a 2-tail probability of .011. None of the other tests are significant. Taking into account the number of the tests and the large degrees of freedom for each test, we are confident of the pre-existing equivalence between these two groups on the outcome variables.

Procedure

Teachers and staff personnel voluntarily participated in the campus-specific trainings. Students were subsequently exposed to the intervention through their teachers and/or our trainers.

Baseline data were collected prior to the commencement of formal teacher trainings at each campus. We collected our pretest data at the beginning of each school cycle when new students came in. Including the baseline data, there are 1056 cases of pretest data. Posttest data collection began one year after the first baseline data were collected. There were three posttest data collections. The last data collection was completed in the Spring of 1990, two years after the initial data collection. The total cases of posttest data are 362; among them, 17 cases have no pretest information. Thus, the pre-post matched data set in fact has 345 cases; the other 694 cases have only pretest data.

The small proportion of pre-post matched cases relative to the number of students who had taken the pretest may cause us to question the reason for this amount of loss. The most important question is whether school retention can be explained by students' school performance. We have investigated this issue based on the students' retention rate across three consecutive school cycles (ten weeks per cycle). Cycles 4, 5, and 6 -- during which the major portion of our data collection was conducted -- were examined for retention rates. Thus, three cohort groups were formed. The average three-consecutive-cycle retention rate of the three cohort groups is .467. A number of t-tests were conducted on the grades from each of the courses between the group which attended school for all three consecutive cycles and the group which missed school for at least one of the three cycles. The overall results clearly indicate that the two groups are generally equal on their grades for the first cycles for all three cohort groups, taking into account the multiple comparisons (see Table VII-3b).

The pre- or post-data collected at different times from all three sites have been combined and used in the analysis. Due to a large number of missing values, we have not been able to estimate the models based on cohorts. Thus more noise, beyond and above the measurement errors in the data, has been introduced by this procedure. Consequently, it has been more difficult to confirm our theoretical hypotheses and to detect intervention effects.

Results

Model I

Figure VII-1 presents the diagram of Model I. The boxed items on the diagram are the manifest variables; the circled ones are the latent variables (factors) which are measured by the manifest variables. The latent variables on the left side of the diagram are exogenous, and those on the right and the "Psupport" in the middle are endogenous.

The manifest variables corresponding to the first five exogenous variables are obtained by the pretest. These five factors stand for self-esteem, locus of control, negative mental state, positive mental state and physical health, respectively. The remaining latent variables are estimated by the manifest variables from the posttest. They represent the two intervention variables (effective group working [Group] and constructive conflict resolution [Conflict]), the intervening variable (social support [Psupport]), and the six outcome variables (self-esteem [Pesteem], locus of control [Pcontrol], academic achievement [Achieve], negative mental state [Pnmentl], positive mental state [Ppmentl], and physical health [Pphysic]).

The LISREL estimation includes two parts simultaneously: the measurement structure and the causal structure. There are eight output matrices of structural parameters altogether: Lambda Y, Lambda X, Beta, Gamma, Phi, Psi, Theta Epsilon and Theta Delta. The output matrices for Model I are presented in Tables VII-4-8.

The structural parameters between the manifest variables and the latent variables in Figure VII-1 are factor loadings. The coefficients between the manifest variables and the exogenous variables are given by Lambda-X matrix; and the ones between the manifest and the endogenous variables are given by Lambda-Y matrix. These coefficients indicate the strength of the relationships between a latent variable and its corresponding manifest variables. Numerically, an element of Lambda X or Lambda Y represents the number of units of its corresponding X_i or Y_i that is expected to change for a one-unit change in the latent variable. A significant t level ($t \geq 1.96$) suggests that a given manifest variable is a good indicator of the latent variable. Table VII-4 presents the estimated Lambda coefficients with their standard errors and t-values.

The directions of the arrows in the diagram of Figure VII-1 imply that the manifest variables are determined by the latent ones. All the observed variables are standardized to have unity variances so that the Lambda X's and Lambda Y's are comparable among the manifest variables.

In the context of LISREL, reliability is defined by the squared multiple correlation between a manifest variable and its latent variable(s). (In the circumstances where a factor structure is unidimensional, the R-squares are just the squared simple correlations.) It should be noted that a squared multiple correlation in LISREL provides a lower bound for the reliability of a variable, since the R-square does not include the variance of the specific component contained in a true score. These R-square estimates provide the reliability information for each of the factors used in this model (See Table VII-5).

LISREL gives all the unstandardized estimates of the structural parameters along with their asymptotic standard errors and the t-values (Table VII-4). Standard errors are estimates of the precision of each parameter estimate. Small standard errors correspond to good precision and large standard errors to poor precision. The t-values, which are independent of the units of measurement, are used to represent the relative magnitude of the parameter estimates.

The estimates with a t-value equal or greater than 1.96 are indicated by solid lines. The ones with a t-value between 1.5 and 1.96 are indicated by dashed lines, and the ones with a t-value between 1.0 and 1.5 by dotted lines.

By estimating Theta Epsilon and Theta Delta, the LISREL program extracts the true score or latent variable for each of the manifest variables (Table VII-4). Since "Achieve" is a one-indicator factor and its measurement error is normally not extractable, the corresponding Theta Epsilon is pre-fixed as .5. This value was based on the results from other analyses.

The size of a Psi coefficient gives the idea of how efficient a structural equation is (Table VII-4). In other words, Psi coefficients are the errors in the equation associated with latent endogenous variables rather than the manifest variables. As in a regression analysis, the disturbance term includes those variables that influence the dependent variable but are excluded from the equation.

The arrows in Figure VII-1 relating the exogenous variables to the endogenous variables represent the Gamma parameters. The arrows among the endogenous variables are Beta parameters. These two parameter matrices constitute the causal structure--the primary interests of our theory testing. The model to be estimated was specified according to conceptualized structure. Again, only coefficients with a t-value equal or greater than 1.0 are displayed in the diagram.

It is important to realize that unlike most multivariate analysis, the treatment of LISREL results should be carried out in a comparative manner and with sufficient caution. Most of the LISREL estimation procedures are based on large sample normal assumptions. Due to missing data, our effective sample size for Model I is only 57. Given this sample size, the conventional critical value .05 for testing the significance of the parameter estimates may not be appropriate with respect to power. Furthermore, the standard error estimates , and thus the t-values, may not be accurate if the normality assumption is violated due to the small sample. Under this circumstance, the t-statistics must not be taken literally. Rather, theoretical judgment based on previous research and logical reasoning carry more weight in the model evaluation. Therefore, we have kept those coefficients with a t-value equal or greater than 1.0 in our diagram; further validation is needed by a power analysis and by estimating partial models.

A number of power analyses were conducted to investigate the probability of rejecting the null hypotheses in regard to the parameter estimates which had a t-value between 1.0 and 1.96, given the true effects as estimated had existed (Table VII-6).

Given the fact that (due to the small sample size) most parameter estimates will not reach a conventional significance level (.05) even when the population parameters are reasonably large, we need further empirical evidence to draw safe conclusions by increasing the effective sample size from the same subject pool. Such a study requires a reduction in the number of variables in the analysis. This validation study was done by analyzing several partial models which are presented later.

Figure VII-1 depicts only direct effects between the latent variables. However, since the variables are inter-related, their effects may reach each other through many indirect paths. Thus, an examination of the total effects of one variable on another will give a more complete picture of the relationships among them. Table VII-7 presents the total effects of ETA on ETA and KSI on ETA; that is, the effects among the endogenous variables and the effects between the exogenous and endogenous variables.

Table VII-8 shows the maximum likelihood estimates of the correlation matrix of the exogenous variables. By definition, the causes for the exogenous variables are outside our research interests. Thus, the relationships among these variables are not viewed in the causal context. However, a significant association between two exogenous variables does reveal that: (a) when one of these two variables is demonstrated to be a cause of a variable, the effect of that variable contains some contributions from the other; (b) a causal relationship may exist between these exogenous variables if a theoretical justification is available, although the causal relationship is not tested.

Phi (7,6) indicates that the two intervention variables "Group" and "Conflict" are correlated with a correlation estimate of .392. The largest correlation estimate is -.765 for Phi(5,3), which is the correlation between "Rphysic" and "Rnmentl."

The main findings from Model I are summarized in Figure VII-1. As we have stated, the model specification was based on the theoretical hypotheses derived from previous research. However, given the size of our model, which has 14 latent variables (correspondingly 47 manifest variables), numerous empirical relationships may potentially exist in our data, due to either the true relationships or sample fluctuation. Thus, many alternative models may be equally possible; in particular, these alternative models may produce the same model fit.

If three Y-variables exist, there are at least 10 possible patterns: three models with Y_1 as the common cause, three with Y_2 as the common cause, three with Y_3 as the common cause, and a full non-recursive model. With four endogenous variables, the permutation is 24; counting the non-recursive ones, there will be many more. Therefore, with a large model, it may often be impossible to estimate all the potential relationships among the variables. This is because, first of all, there rarely exist theoretical justifications which give unequivocal guidelines directing the model specification; secondly, even when such guidelines are available, the empirical situation may not allow all the parameters to be estimated, due to the constraints of model identification and the sizes of the true parameters.

We have followed three policies in our analysis: (1) specify and test only those parameters about which we have derived specific hypotheses according to prior knowledge. (2) Fix those parameters which do not reveal meaningful theoretical implications in our theory testing. For example, the relationships between negative mental state and positive mental state are not within our main research interests. As a consequence of pre-fixing certain parameters, the overall model fit will be reduced. (3) For those parameters which are set free to be estimated, alternative models are tested if they are equally plausible or have been suggested by previous research in order to ascertain whether the data support our hypotheses better. For example, the relationships between self-esteem and achievement may have three possible patterns: a reciprocal relationship, a unidirectional relationship which specifies self-esteem as a cause of achievement, and a unidirectional relationship which specifies achievement as a cause of self-esteem. Given our hypothesis that achievement is a cause of self-esteem, we verify our claim by assessing the goodness of model fit resulting from each of the three alternative models.

LISREL produces four measures of overall goodness of fit:

(a) Chi-square (χ^2)

(b) Goodness of fit index (GFI)

(c) Adjusted goodness of fit index (AGFI)

(d) Root mean squared residual (RMR)

In general, ML minimizes the fit function

$$F_{ML} = \log|\Sigma| + tr(S\Sigma^{-1}) - \log|S| - (q+p).$$

Where for a square matrix A, |A| denotes the determinant of A and tr(A) denotes the sum of the diagonal elements of A. Σ is the covariance matrix produced under the specified model; and S is the sample covariance matrix. The q and p in the last term of the equation are the number of x and y variables. It is clear that if Σ equals S, then, $\log|\Sigma|-\log|S|$ becomes zero and $tr(S\Sigma^{-1})$ equals (q+p). Thus, F_{ML} and χ^2, which is (N-1) times the minimum of the fit function F_{ML}, both are zero with a p-value of 1, which indicates a perfect fit between the two covariance matrices. The greater the F and χ^2 are, the smaller the p-value is, and the poorer the fit is between the proposed model and the data.

Comparing the three χ^2's associated with the three alternative models of achievement and self-esteem, holding other relationships constant, we found that a χ^2 with 980 degrees of freedom associated with the hypothesized model was 500.07. The test for the alternative model having self-esteem as the cause of achievement yielded a χ^2 of 502.60 with 980 degrees of freedom. The reciprocal model had a χ^2 of 497.50 with 979 degrees of freedom. However, the estimation of the reciprocal model produced a negative estimate for the R-square of the structural equation for "Achieve." This indicates possible misspecifications.

Since there is no degree of freedom for testing the alternative unidirectional model, the difference of χ^2's associated with the two models is not statistically testable. But the hypothesized model has a slightly smaller χ^2. Although the estimation of the reciprocal model is converged, the estimated negative R-square prevents us from making a conclusion regarding this test. Thus, the hypothesized model is considered to be tenable.

However, given a lack of strong evidence favoring the hypothesized model and the fact that the three models all have theoretical bases, the possible existence of the other two models cannot be eliminated.

The fit function for ML is derived from the maximum likelihood principle based on the assumption that the observed variables have a normal distribution (Joreskog, 1967,1989). Under the assumption of multivariate normality, ML are optimal in the sense of being most precise in large samples compared to other fit functions. However, if the distributions deviate largely from normality, the chi-square measure and standard errors of parameter estimates may not be correct.

Another problem with using chi-square is that the sample size must be sufficiently large but not too large. Research has suggested that in small samples the chi-square statistic tends to be too large, which leads to too frequent rejections of *Ho* (Bollen, 1989). ("*Ho*" is usually related to the more parsimonious model.) On the other hand, small sample size reduces the power of a test. As we showed before, the estimator of chi-square is $(N-1)F_{ML}$, thus for the same value of F_{ML}, the chi-square as well as the power of the test increases as N increases. This is a paradoxical situation.

Furthermore, a small sample size leads to large standard errors estimated for each free parameter, which reduces the t-statistics. Therefore, the influence of sample size on chi-square is rather complicated. However, large sample sizes and the departures from normality generally tend to increase χ^2 over and above what can be expected due to specification errors in the model (Joreskog & Sorbom, 1989). Given the sample size of 57, the chi-square statistic can be treated only in a comparative manner rather than as an absolute test statistic, even if all the basic assumptions are fulfilled. The chi-squares associated with the differences (χ^2-difference) between alternative models are fairly reliable and informative.

The other two fit indices are less subject to the influence of sample sizes; however, their distributions are unknown. The values of these two measures should be between zero and one. The closer they are to one, the better the fit is.

The root mean squared residual (RMR) is a measure of the average of the fitted residuals and can be interpreted only in relation to the sizes of the observed variances and covariances in S.

Table VII-9 displays the four values of fit indices. GFI and AGFI indicate a moderate fit of the model to the data. This is what we expected because of the way the model is specified. But, the value of chi-square corresponds to a p-value of one, which implies a perfect fit. This results from the influence of the small sample size; the p-value is, in fact, overly inflated. By convention, a χ^2 with its p-value equal or greater than .05 suggests an acceptable fit.

The RMR is .273. Given the large variance of the achievement measure, this value of RMR may have been pushed up. Checking the fitted residuals, we can find that all the elements greater than 1, on and off the diagonal, are associated with the achievement measure. It indicates that the RMR is to some extent inflated by the measure of achievement.

Table VII-9 gives also other measures of model assessment, which reflect the efficiency of the model specification. The squared multiple correlation coefficients for structural equations represent the variances explained by each of the structural equations. The total coefficient of determination for the structural equations in Table VII-9 gives an overall percentage of variance of all the endogenous variables explained by the whole model. The coefficient is .739, which is fairly impressive. It should be noted that this measure tends to be larger when a model contains more equations (Bollen, 1989). We also noticed that this figure is larger than each one of the multiple squared correlations for the equations. It is an indication that the coefficient of determination is somewhat inflated.

Model II

Figure VII-2 presents the LISREL diagram of Model II. As a parallel model of Model I, school crime and student victimization, rather than social support, were treated as the intervening variables. In order to reduce the number of missing cases, we excluded the achievement variable from Model II. The academic achievement variable was measured by the Regents Competency Test (RCT), which came from a source independent of our data collection. Matching the RCT data in Model I to our variables drastically reduced the effective sample size for the analysis. Matching the pre- and post-data also noticeably reduced the effective sample size. Thus we excluded "Rpmentl" and "Rphysic" from Model II. In order to obtain better estimation of the model, "Pphysic" was also eliminated from the analysis. As a result, the sample size for Model II reached 151. However, this is still not large enough to provide adequate power for the model testing.

Gamma matrix is free by default in LISREL. For Model I, we fixed the matrix and estimated only those parameters we had hypothesized. In order to explore possible empirical relationships, which might be suggested by the data, we used the default format for Model II to estimate all the elements of Gamma matrix. This makes Model II a combination of confirmatory and exploratory methods. The determination coefficient is very high (.83) for Model II, which is another indication of the efficiency of the model.

Partial Models

The partial models were analyzed with LISREL 6. The listwise deletion treatment for missing values was employed for Submodels 1, 2, and 3; the pairwise deletion treatment was used for Submodels 4 and 5. The different treatment for missing data is because Submodels 4 and 5 incorporated students' RCT data, which leaves fewer cases matched in the sample. Submodels 1 and 2 had a sample size of roughly 200; Submodel 3 had approximately 151 cases, and Submodels 4 and 5 used the default value, which was 100 in LISREL 6.

In order to compare the estimates of the partial models to those of the general models, all the estimates of the partial models are unstandardized. Figure VII-3 shows Submodel 2: social climate and mental health. There are three significant arrows starting from social support: social support to victimization (-.285), to negative mental state (-.536) and to positive mental state (.333). The victimization variable has an effect on negative mental state in Figure VII-2. This effect disappeared in Figure VII-3. The difference between these two models may be due to three factors: (1) the incorporation of social support, (b) the omission of the variable "Conflict," and (c) different samples actually used in different models.

Figure VII-4 presents Submodel 3: social climate and self-evaluation. We found that most results of this partial model are consistent with our general models, except for the arrow from victimization to self-esteem (-.159), which is absent from Model II. In checking Table VII-9, we found the corresponding coefficient Beta (3,2) in Model II was -.089 with a standard error (.106) one-half the size of the one in Submodel 3. The reduction from Submodel 3 to Model II seems more likely due to the differences in specification rather than simply the difference in sample sizes or sample fluctuation. We see in Model II that the variable of self-esteem has an unstandardized stability coefficient (Gamma (3,1)) of .375 (Table VII-9), and the variable "Conflict" has an effect of .239 on "Pesteem" (Gamma (3,5)). These two variables were not included in Submodel 3.

Submodel 4 in Figure VII-5 presents the effect of mental health on academic achievement. The effect of positive mental state on achievement was not found in Model I. Submodel 5 in Figure VII-6 provided substantial support for the effect in Model I of locus of control on academic achievement (.626).

Submodel 1 in Figure VII-7 supported the two general models for the effects of "Conflict" on the two intervening variables social support and victimization. The effect of social support on victimization was not estimated in the general models; however, this effect is consistently estimated throughout the three Submodels 1, 2, and 3.

We may notice from Figures VII-3 to VII-7 that all the submodels fit the data well. The p-values of chi-square statistics range from .102 to .977, and GFI's range from .920 to .973. Except for Submodel 4, which is not confirmed by the general models, the rest of the partial models all have decent R-squares for the respective structural equations ranging from .178 to 249, given these are much smaller models compared to the general models.

Model III

Our last two models were designed for detecting the intervention effects, which are often referred to as Factor Mean Structures.

To estimate factor means, four more matrices have to be defined in addition to the earlier eight matrices. They are Tau-Y (τ_y), Tau-X (τ_x), Alpha (a), and Kappa (*k*).

The fit function to be minimized is now expressed as

$$F = \sum_{g=1}^{G} N_g F_g / N, \qquad \text{where}$$

$$F_g = .5(s^{(g)} - \sigma^{(g)})' W^{-1}_{(g)} (s^{(g)} - \sigma^{(g)}) + .5(\bar{z}^{(g)} - \mu^{(g)})' V^{-1}_{(g)} (\bar{z}^{(g)} - \mu^{(g)}) \qquad \text{where}$$

$$\mu^{(g)} = (\mu^{(g)}{}_y, \mu^{(g)}{}_x)' \text{ and } V_{(g)} = \hat{\Sigma}_{(g)} \text{ for ML.}$$

Where $\mu^{(g)}$ is a vector of the population means of all the manifest variables for group g, and $\bar{z}^{(g)}$ is a corresponding vector of sample means for group g. Thus, the overall fit function F is a linear combination of the separate fit functions for each group weighted by respective group sizes. Moreover, in addition to the differences in variances and covariances, the F function for mean structures also takes into consideration the differences between sample means and the estimated means.

A fundamental difference between the analysis of a single group and the analysis of multiple groups is that in the analysis of a single group the mean of a latent variable is undefined (not identified); whereas in the case of multiple group analysis, the means of a latent variable in different groups can be defined with respect to each other. Thus, in our situation, one group may be compared to another in terms of the effects of the interventions.

There are different ways of defining the factor means. As described previously, the origins and units of measurement of latent variables in a single group analysis can be easily defined by selecting a reference variable for each latent variable. In order to compare the means across groups, however, we need to fix an origin for each of the latent variables. Joreskog and Sorbom (1989) suggest that the mean of KSI in one group (such as the control group) be fixed at zero, and leave the rest free to be estimated. This will suffice, since all we may desire is the differences between groups. Similarly, the origin of a scale may be set in the same manner when a model involving ETA equations is concerned.

We followed Joreskog's convention in our analysis and set Kappa of Campus B at zero. All the latent variables are treated as KSI's. As a result, there are no Alpha terms involved. Since the input matrices were produced by regular correlation program of SPSS, the pairwise missing information was not directly provided. Thus the number of observations for all sites were set equal to 70. (The sample sizes were later checked as 51 for Campus A, 56 for Campus B, and 73 for Campus C.) The results are presented in Figures VII-8 - VII-10.

Model III is a multi-group comparison of factor structures at the baseline level; that is, none of the Lambda X, Theta Delta, and PHI matrices are restricted by equality constraints, except where the factor patterns are fixed to be the same across groups. This model was designed to reveal the factor patterns at each campus for the two intervention variables and the three intervening variables.

Figure VII-9 displays the results for Campus B, which had both types of interventions. Compared with the other two campuses (Figures VII-8 and VII-10), it is possible that the combined interventions at Campus B have made the most systematic changes among these variables. Particularly, the correlation between "Group" and "Conflict" reached .75. This may be an indication that these two training programs have produced a mutual facilitation effect.

In general, more systematic variation is indicated among the variables for Campus B than the other campuses. However, to demonstrate that these differences are truly attributable to the interventions rather than campus differences we need further evidence.

Model IV

Figure VII-11 reveals the factor mean structures of the five variables for our fourth model. This is the effect analysis model with which we evaluate the effects of the interventions.

> In this model, Lambda X, Theta Delta, and Tau-X were set invariant for all three campuses. Since we intended to compare the mean differences, it would be reasonable to maintain measurement equality across campuses. Kappa elements were set to zero for Campus B so that a measurement origin for the factor means may be defined.

Our emphasis is on the two intervention variables.[2] It should be noted that "gain-scores" were used as the indicators of the intervention variables in all our models; thus, possible pretest differences have been taken into account. As we have stated, the methodological assumption of this particular analysis is that if the factor mean structures could recover the original design pattern of the project from the data it would be reasonable evidence for the claim that the interventions of cooperative learning and/or conflict resolution had yielded effects. How strong the evidence could be depended on to what extent the two structures -- the designed and the empirical -- coincide.

Figure VII-11 presents the results based on scaled factor mean scores. The scaled mean scores were computed such that the weighted mean over the groups is zero for each factor. The method used follows an example by Joreskog and Sorbom (1989). Since we have set the sample sizes all equal to 70, the weight for each campus is a unity. Figure VII-18 shows that for the variable "Group," Campus B has the highest mean score, Campus C is in between, and Campus A -- where cooperative learning was not introduced -- has the lowest mean score. In contrast, for the variable "Conflict," Campus A has the highest mean score, Campus B follows, and Campus C -- where conflict resolution was not implemented -- has the lowest mean score.

---

[2] It should be noted that the two intervention variables, "Group" and "Conflict," are not conceived to be pure measures of the direct effects of "cooperative learning" and "conflict resolution" training, respectively. Presumably, both types of training could affect each variable. However, the distinctive features of cooperative learning -- e.g., an emphasis on group skills -- and the distinctive features of conflict resolution training -- e.g., control of anger -- should lead to differential effects of the two types of training on the "Group" and "Conflict" variables.

Given the above mean structures, what is the probability that this pattern may be due to pure chance rather than true effects of the interventions? Since school campuses were randomly assigned to each of the three treatment conditions, this probability may be calculated based on a randomization procedure. There were three positions for each intervention variable. The full permutation is 6 possible arrangements for each variable. With two variables, we then have 36 arrangements altogether. However, there were only two arrangements acceptable for each variable according to the original design; this is, either Campus C takes the first position and Campus B takes the second position, or Campus B takes the first position and Campus C the second on "Group"; and Campus A takes the first position with Campus B the second, or Campus B takes the first position and Campus A the second on "Conflict." Thus, the probability of obtaining an acceptable pattern is one out of nine times.

However, as the qualitative analysis in the chapter by Mitchell indicates, we found that the implementation of cooperative learning intervention at Campus C had a much lower quality compared to the same intervention implemented at Campus B. According to this result, the acceptable arrangements on "Group" may be narrowed down from two to one; that is, only the result with Campus B standing at the first position and Campus C at the second will be acceptable for the variable "Group." Then the chance probability of getting the above obtained pattern may be reduced to one out of eighteen times, that is, .056. Certainly, this randomization test only provides a rough idea about the effect sizes, since the distances between positions in the diagram were not taken into consideration.

The implementation problems are, in fact, suggested in Figure VII-11. Since the cooperative learning intervention was implemented at both Campus B and Campus C, their relative standing on the variable "Group" should be rather close, as is the case for Campuses A and B on "Conflict." The mean score of Campus C, however, falls far below Campus B. This result may be taken as a suggestion that the implementation of cooperative learning at Campus C was not very successful, or that the intervention of cooperative learning without conflict resolution was less effective.

Discussion

The main theoretical findings in this study are reflected in Models I and II. The partial models provide corroborative evidence and supplementary information. Model III portrays the factor structures across the three school campuses, which are very informative regarding the differences in the implementation of the interventions. Model IV presents the profile of factor mean structures for the effect evaluation against the original intervention design.

A General Finding of this Study

This study has demonstrated that most of the effects of improvements in constructive conflict resolution upon a student's self-esteem, locus of control, mental health, physical health, and academic achievement are mediated by changes in his/her interpersonal relationships as indicated by increased student's social support and decreased victimization. Through his/her enhanced social support or reduced victimization, constructive conflict resolution can, on the one hand, increase a student's self-esteem, locus of control, and positive mental state (i.e., his/her cheerfulness, general interests in life, emotional stability, and general activeness) and, on the other hand, decrease his/her negative mental state (i.e., depression, anxiety, and sadness).

Social support is a relatively new concept in the literature of conflict resolution. The earlier research within Deutsch's paradigm on conflict resolution was mostly conducted at the micro-level and focused on motivational or attitudinal factors such as trust and suspicion, or factors which might have influence on the process of conflict resolution such as communication, etc. There was little research on the mechanism that transmitted the effects of conflict resolution onto its social psychological outcomes. Although it is a logical derivation of Deutsch's conflict theory, the moderating/mediating function of social support had not been brought under scrutiny in Deutsch's laboratory until the late seventies (Steil, Tuchman, and Deutsch, 1978; Steil, 1980, 1983). In their study of the responses to injustice by advantaged and disadvantaged subjects, social support was found to lead the disadvantaged, but not the advantaged, subjects to become more sensitive to the injustice. Moreover, social support reduced the tendency for self-blame among the disadvantaged subjects. In other words, social support moderated the effects of conflicts which were manipulated as justice/injustice conditions in their studies.

In the present study, when social support was absent in Model II, the variable "Conflict" had direct effects on both self-esteem and negative mental state. However, when social support was incorporated into the model (Model I), all the effects of conflict resolution were mediated through social support. Thus, enhanced self-evaluation and mental health may be the consequences of better social support which results from successful conflict resolution, rather than being the direct results of constructive conflict resolution.

The Overall Findings of the Causal Modeling

Among the unconfirmed hypotheses in our models, the more important is the one which predicts the effects of improvements in working together in groups on a student's social support. Deutsch (1949a, 1949b, 1958, 1960, 1962, 1973) has predicted that promotive interdependence produces better communication, mutual help, mutual trust, mutual commitment, and sense of responsibility among cooperators. Johnson and Johnson (1989) in their survey of previous research concluded that cooperation generally will produce greater social support than competitive or individualistic efforts. It seems that improvements in effective group working should be expected to induce better social support.

There are several reasons why this expected effect did not occur. First of all, the variable we used for measuring effectiveness in groups in our analysis is different from those used in previous studies. Most of the past studies did not separate the distinctive components from those of cooperative learning.

Certainly, it may not be possible or even conceptually plausible to separate the two variables entirely. Effective group working requires participants in a group to be in social harmony; constructive conflict resolution may be reflected in whether the students are able to work together cooperatively in the group. Thus, although these two variables are different theoretical constructs, they are closely related to each other. The problem is to be able to accurately operationalize the distinctions and connections. By LISREL modeling, we expected to be able to select the indicators which may better represent the entangled relationship and incorporate each component in the two latent factors with appropriate proportion.

Unfortunately, the latent factor "Group" is not effectively indicated by the manifest variables; the indicator "Pothdo," which is supposedly to measure self-expectation of help from others in a group, has equivocal meaning and is poorly worded. That left only two items indicating the factor "Group." Thus, the variable of effective group working was not well operationalized in our models.

Also, implementation of the cooperative learning intervention at Campus C (which was the cooperative learning-only site,) was generally not successful; this has been suggested in the results of Model IV. The qualitative analysis of the intervention indicates that the implementation problem may be attributed to these factors: (1) less training time at this campus than at the others; (2) a high student dropout rate relative to the other campuses; and (3) a trainer who was very experienced with the content and methods of cooperative learning but inexperienced with schools in urban settings having an alternative education orientation.

Summary and Conclusions

We now integrate the empirical results from all our LISREL models and present them below as a summary and conclusions:

(a) The effects of constructive conflict resolution on social support and victimization have been demonstrated in Models I and II, and supported by Submodel 1. Conflict resolution may also have direct impact on the student's mental health and self-esteem (Model II).

(b) The effects of effective group working on social support and victimization are not directly confirmed. However, the correlation between the two variables "Group" and "Conflict" suggests that there is a certain amount of contribution from effective group working to the effects of constructive conflict resolution on other variables. Furthermore, effective group working has been suggested to have an impact upon some outcome variables (Model II). But the operational, implementational, and other problems indicated above prevent us from making definitive conclusions in this regard.

(c) Changes in interpersonal relationship, elicited by constructive conflict resolution and reflected in the measures of social support and victimization, are indicated to be effective in promoting mental and physical health, facilitating positive personal attitudes toward life, and enhancing self-esteem and internal locus of control (Models I and II, and Submodels 2 and 3).

(d) Constructive conflict resolution, mediated by school social support and locus of control, enhances a student's academic achievement (Models I and II, and Submodel 5). Academic achievement is indicated by averaged RCT scores, which are considered to be more reliable than school grades. Academic achievement, in turn, contributes to a student's self-esteem and reduces his/her depression, anxiety, and psychological distress (Model I).

(e) Among the outcome variables, self-esteem is a major source for further changes in locus of control, mental health, and physical health (Model I and II, and Submodel 3).

(f) Initial locus of control is significantly correlated to both effective group working and constructive conflict resolution. In other words, improvements in constructive conflict resolution, as confirmed in Models I and II, and Submodels 1 and 3 combined, increases internal locus of control through reduced victimization and enhanced self-esteem, while initial internal locus of control is associated with the improvements in constructive conflict resolution. This implies the pattern predicted by Deutsch's crude law of social relations (see Chapter II).

(g) Model IV strongly indicated that the intervention of cooperative learning at Campus B yielded improvements among students in effective group working. Improvements in constructive conflict resolution at Campus A and Campus B are suggested. But there are no statistical tests applied to these two effects. Since the findings of Model IV reflect precisely the original research design, the overall effects of the training programs are assumed.

(h) The effect analysis in the present study is based on the modeling of factor mean structures. Model I, Model II, and the five partial models have consistently shown the induced social psychological consequences of constructive conflict resolution and possibly effective group working. Model IV indicates further that these effects may be attributable to the intervention(s) at Campus B and/or Campus A. The implication is that the interventions of conflict resolution and, possibly, cooperative learning have generally produced real social psychological and, subsequently, educational changes indicated by the causal estimations. In other words, Model IV bridges the findings of the theory testing to the results of the interventions and thus provides the basis for the claims regarding the real social psychological and educational changes among the students.

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Figure VII-1 Diagram of Model I

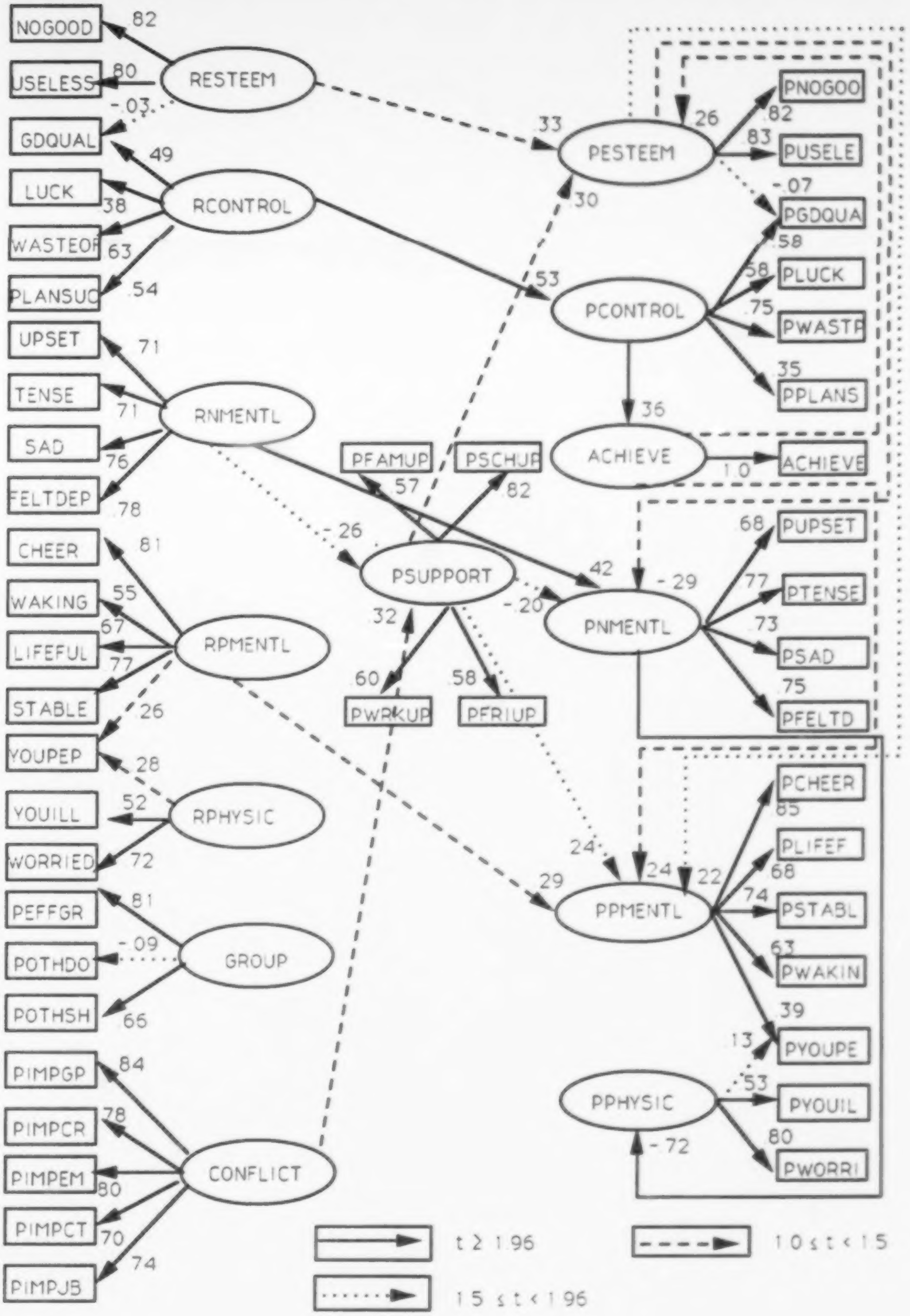

NOGOOD
USELESS
GDQUAL
LUCK
WASTEOF
PLANSUC
UPSET
TENSE
SAD
FELTDEP
CHEER
WAKING
LIFEFUL
STABLE
YOUPEP
YOUILL
WORRIED
PEFFGR
POTHDO
POTHSH
PIMPGP
PIMPCR
PIMPEM
PIMPCT
PIMPJB
RESTEEM
RCONTROL
RNMENTL
RPMENTL
RPHYSIC
GROUP
CONFLICT
.82
.80
-.03
.49
.38
.63
.54
.71
.71
.76
.78
.81
.55
.67
.77
.26
.28
.52
.72
.81
-.09
.66
.84
.78
.80
.70
.74
PFAMUP
PSCHUP
.57
.82
-.26
PSUPPORT
.32
.60
.58
PWRKUP
PFRIUP
.33
.30
PESTEEM
.26
PNOGOO
.82
.83
PUSELE
-.07
PGDQUA
.58
.58
PLUCK
.75
PWASTP
.35
PPLANS
.53
PCONTROL
.36
ACHIEVE
ACHIEVE
1.0
.42
-.29
-.20
PNMENTL
.68
PUPSET
.77
PTENSE
.73
PSAD
.75
PFELTD
.24
.24
.22
.29
PPMENTL
PCHEER
.85
PLIFEF
.68
.74
PSTABL
.63
PWAKIN
.39
PYOUPE
.13
.53
PPHYSIC
PYOUIL
.80
PWORRI
-.72
t ≥ 1.96
1.0 ≤ t < 1.5
1.5 ≤ t < 1.96

Figure VII-2 Diagram of Model II

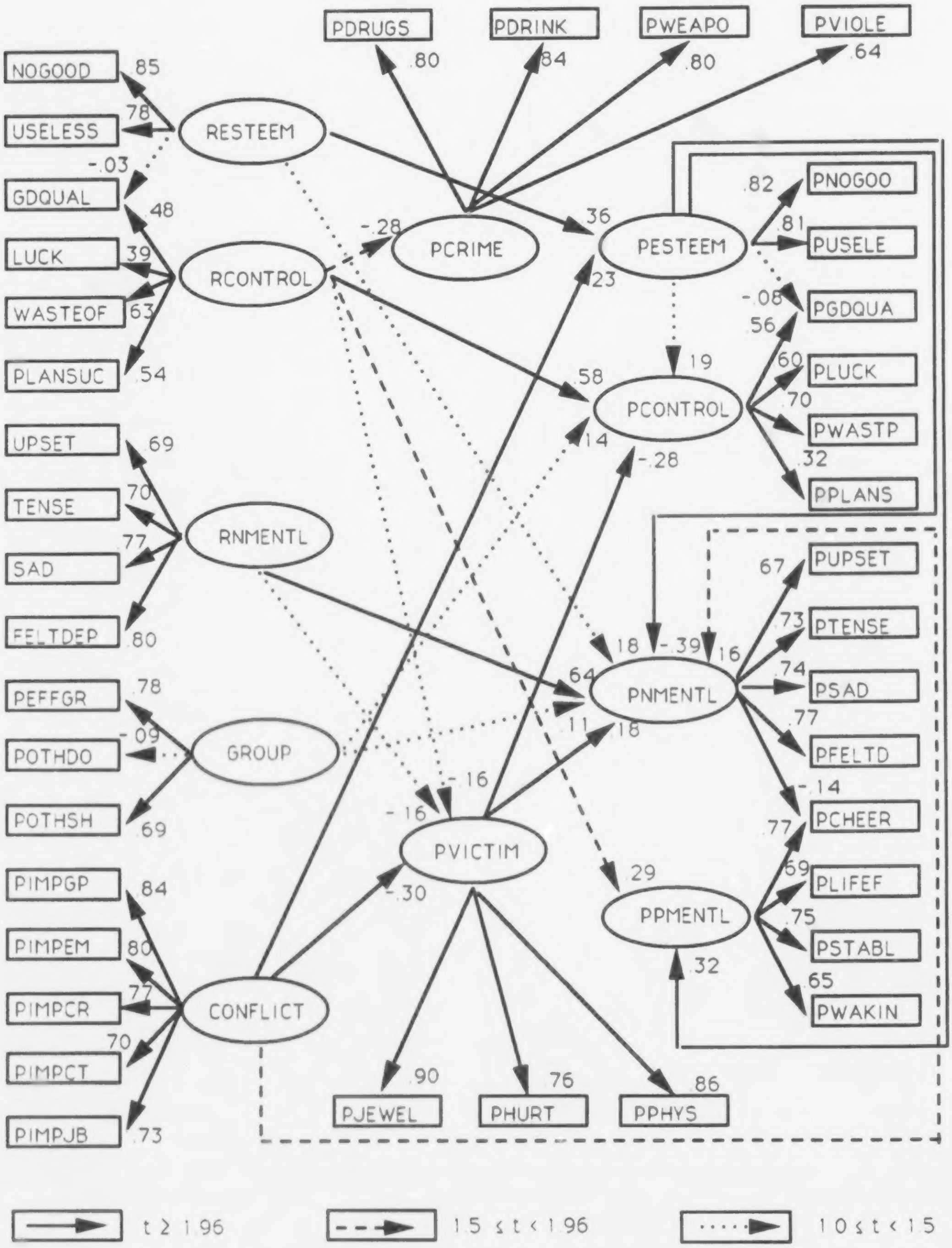
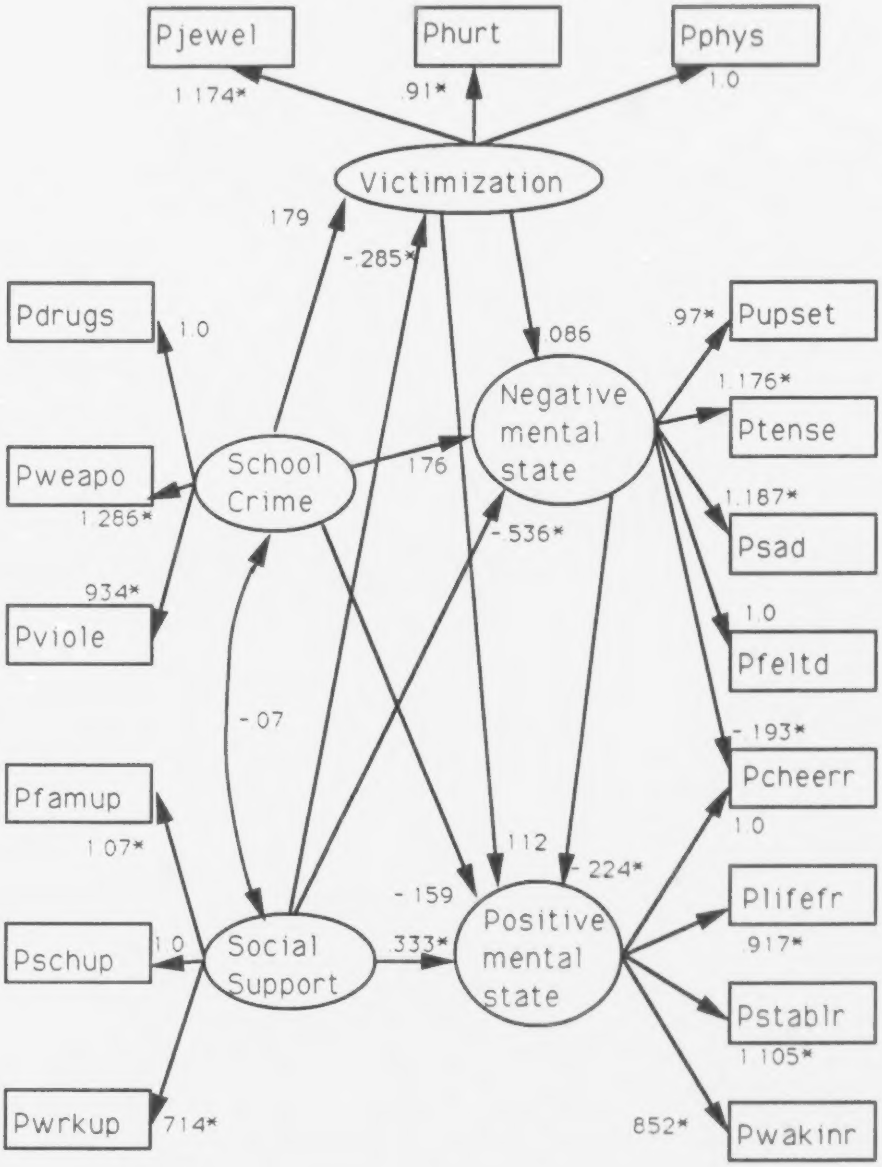

PDRUGS
PDRINK
PWEAPO
PVIOLE
.80
.84
.80
.64
NOGOOD
USELESS
GDQUAL
LUCK
WASTEOF
PLANSUC
85
78
-.03
48
39
63
.54
RESTEEM
RCONTROL
PCRIME
-.28
PESTEEM
.36
.23
PNOGOO
PUSELE
PGDQUA
PLUCK
PWASTP
PPLANS
.82
.81
-.08
.56
.60
.70
.32
PCONTROL
19
58
14
-.28
UPSET
TENSE
SAD
FELTDEP
69
70
77
80
RNMENTL
PUPSET
PTENSE
PSAD
PFELTD
PCHEER
67
.73
.74
.77
-.14
PNMENTL
18
-.39
16
64
.11
18
PEFFGR
POTHDO
POTHSH
.78
-.09
69
GROUP
PVICTIM
-.16
-.16
-.30
PIMPGP
PIMPEM
PIMPCR
PIMPCT
PIMPJB
84
80
77
70
73
CONFLICT
PPMENTL
.29
.32
PLIFEF
PSTABL
PWAKIN
.77
69
.75
65
PJEWEL
PHURT
PPHYS
.90
76
.86
t ≥ 1.96
1.5 ≤ t < 1.96
1.0 ≤ t < 1.5

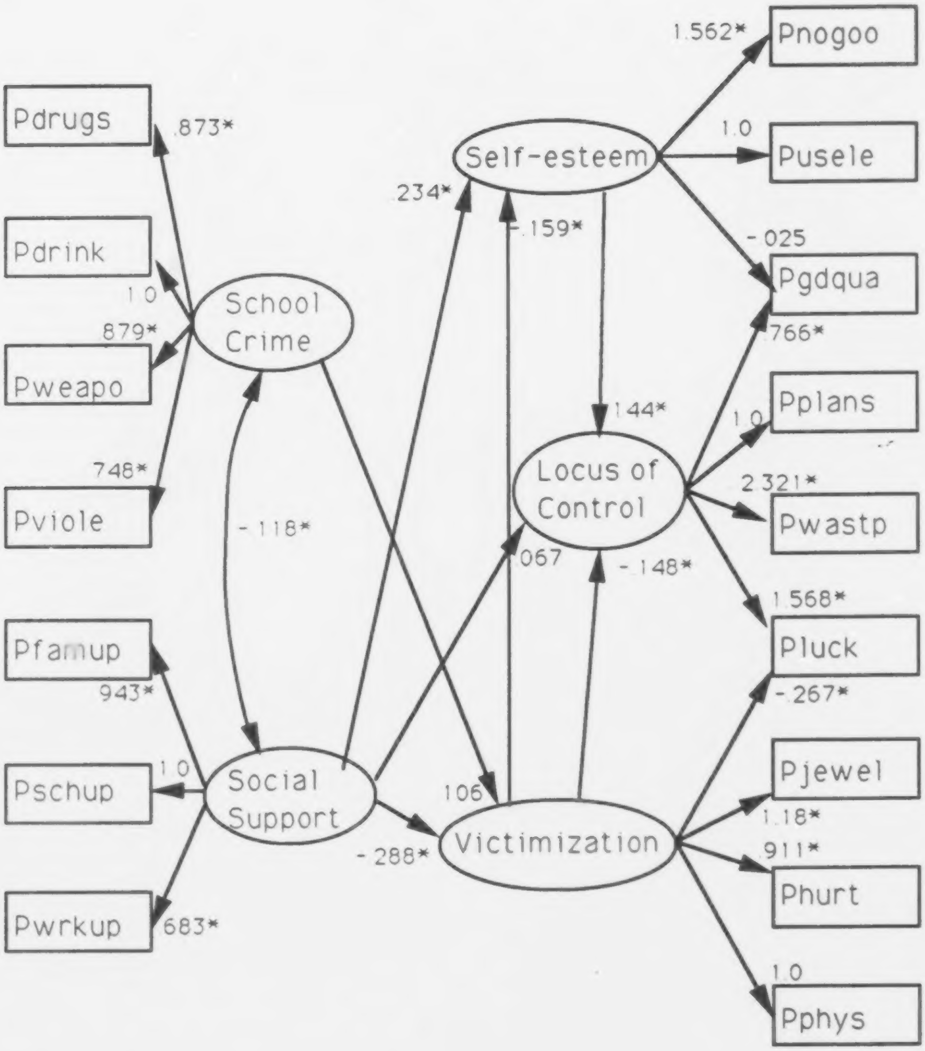
Figure VII-3 Diagram of Submodel 2


Pjewel
Phurt
Pphys
1.174*
.91*
1.0
Victimization
.179
-.285*
Pdrugs
1.0
.086
.97*
Pupset
Negative mental state
1.176*
Ptense
Pweapo
School Crime
.176
1.286*
-.536*
1.187*
Psad
.934*
Pviole
1.0
Pfeltd
-.07
-.193*
Pcheerr
Pfamup
1.0
1.07*
.112
-.224*
-.159
Plifefr
Pschup
1.0
Social Support
.333*
Positive mental state
.917*
Pstablr
1.105*
Pwrkup
.714*
.852*
Pwakinr

Model fit: P = .207 for the MLE
Variance explained by the structural equations: .249
Goodness of fit index: .935
Adjusted goodness of fit index: .908
Root mean square residual: .081

* t ≥ 1.96

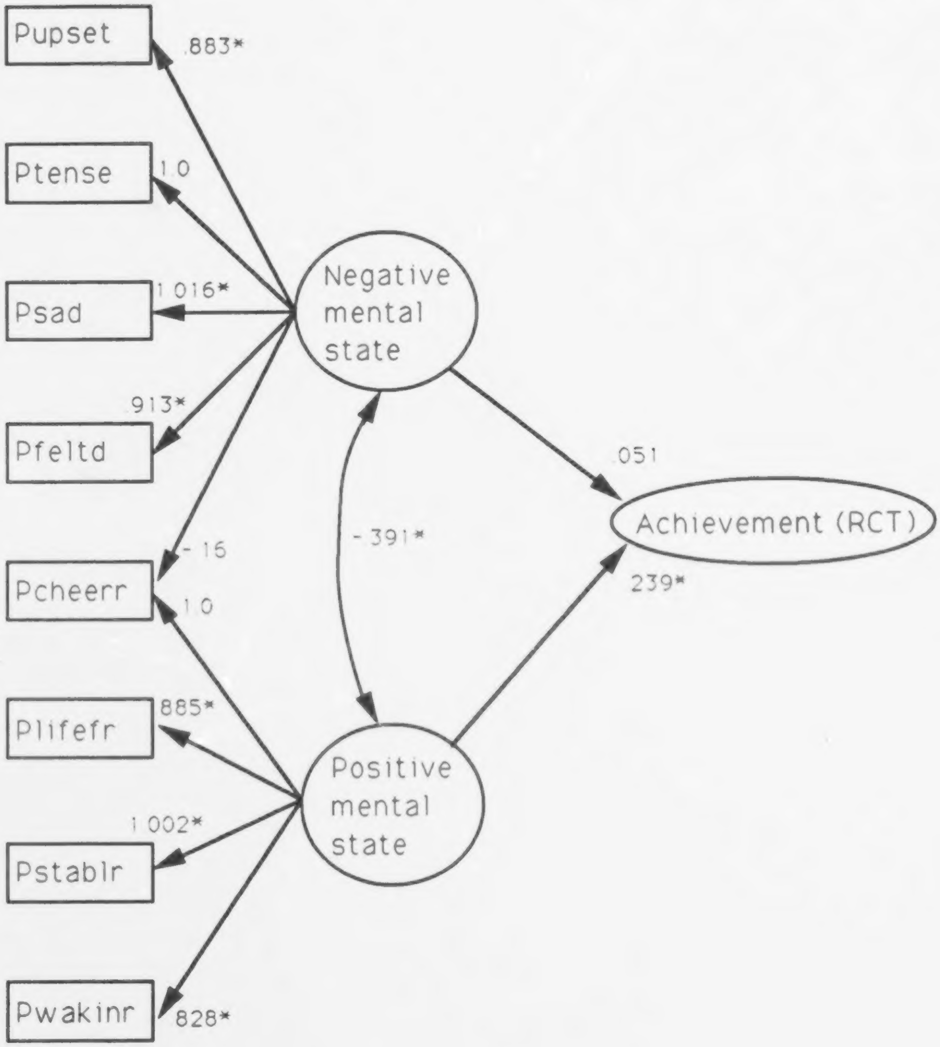
Figure VII-4 Diagram of Submodel 3


Pdrugs
Pdrink
Pweapo
Pviole
.873*
1.0
.879*
.748*
School Crime
-.118*
Pfamup
Pschup
Pwrkup
.943*
1.0
.683*
Social Support
.234*
Self-esteem
-.159*
.144*
Locus of Control
.067
-.148*
.106
-.288*
Victimization
1.562*
Pnogoo
1.0
Pusele
-.025
Pgdqua
.766*
1.0
Pplans
2.321*
Pwastp
1.568*
Pluck
-.267*
Pjewel
1.18*
.911*
Phurt
1.0
Pphys

Model fit P = .113 for the MLE
Variance explained by the structural equations: .178
Goodness of fit index: .936
Adjusted goodness of fit index: .907
Root mean square residual: .044

* t ≥ 1.96

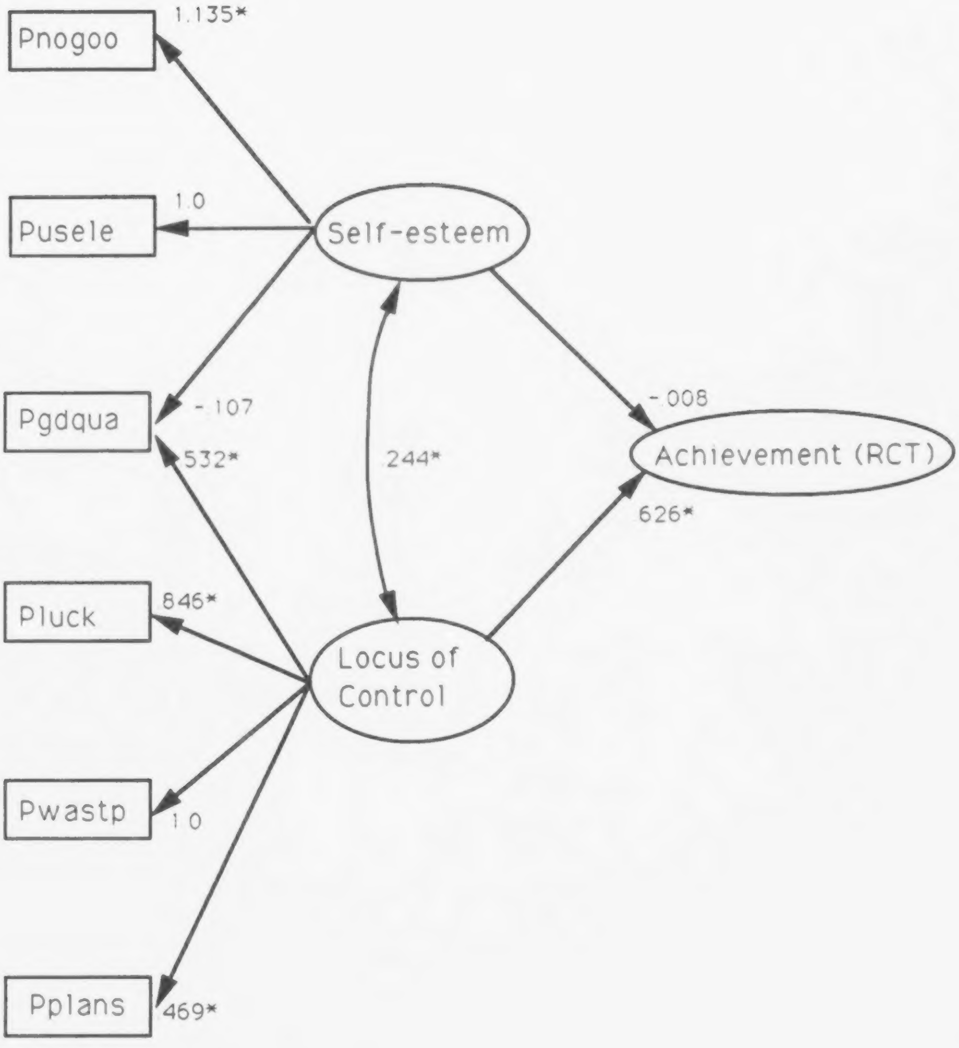
Figure VII-5 Diagram of Submodel 4


Pupset
.883*
Ptense
1.0
Psad
1.016*
Pfeltd
.913*
Pcheerr
-.16
1.0
Plifefr
.885*
Pstablr
1.002*
Pwakinr
.828*
Negative mental state
Positive mental state
-.391*
.051
.239*
Achievement (RCT)

Model fit: P = .977 for the MLE
Variance explained by the structural equations: .071
Goodness of fit index: .973
Adjusted goodness of fit index: .95
Root mean square residual: .078

* t ≥ 1.96

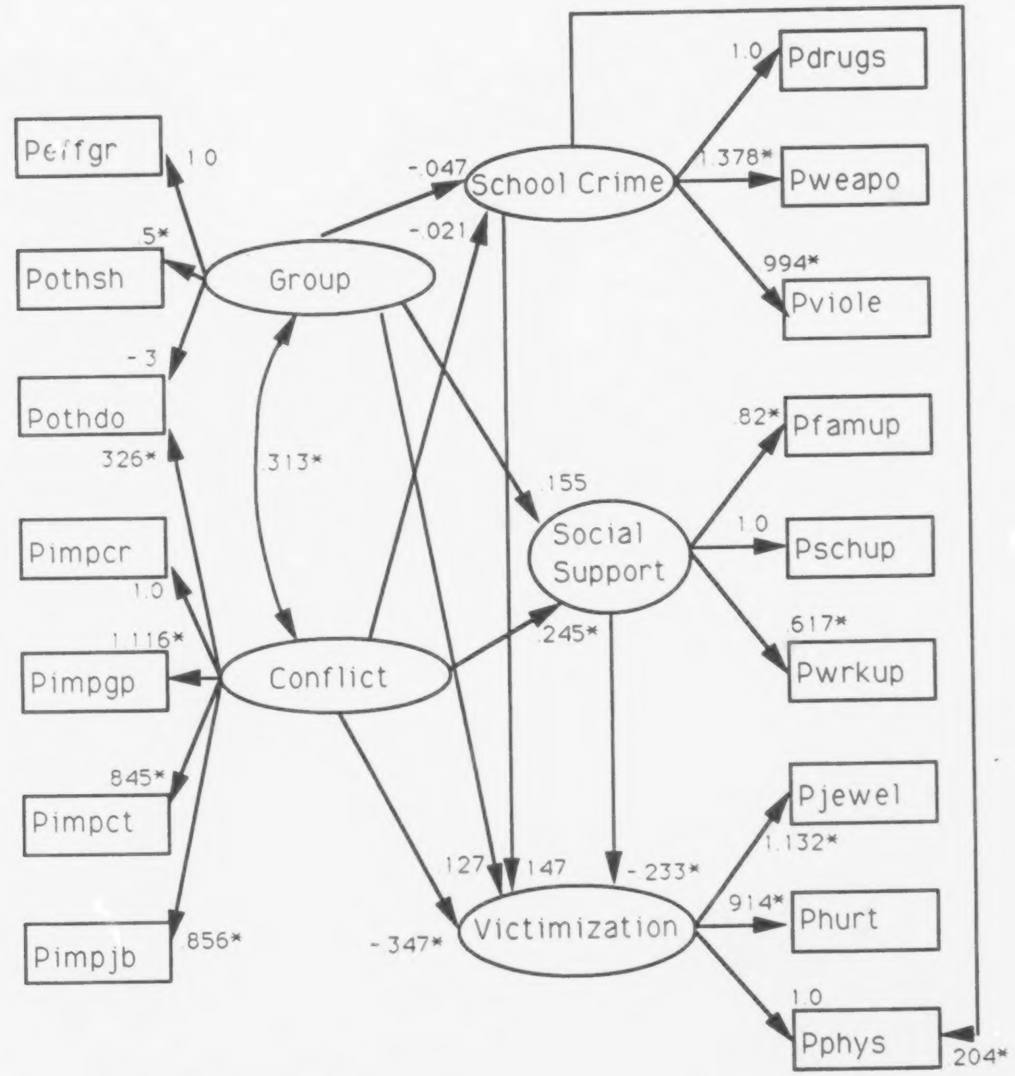
Figure VII-6 Diagram of Submodel 5


Pnogoo
1.135*
Pusele
1.0
Self-esteem
Pgdqua
-.107
.532*
.244*
-.008
Achievement (RCT)
.626*
Pluck
.846*
Locus of
Control
Pwastp
1.0
Pplans
.469*

Model fit: P = .295 for the MLE
Variance explained by the structural equations: .212
Goodness of fit index: .964
Adjusted goodness of fit index: .908
Root mean square residual: .047

* $t \geq 1.96$

Figure VII-7 Diagram of Submodel 1


Peffgr
1.0
Pothsh
.5*
Pothdo
-.3
326*
Pimpcr
1.0
Pimpgp
1.116*
Pimpct
845*
Pimpjb
.856*
Group
.313*
Conflict
-.047
-.021
School Crime
1.0
Pdrugs
1.378*
Pweapo
994*
Pviole
.155
Social Support
.82*
Pfamup
1.0
Pschup
.617*
Pwrkup
.245*
127
147
-.233*
-.347*
Victimization
Pjewel
1.132*
914*
Phurt
1.0
Pphys
204*

Model fit P = .102 for the MLE
Variance explained by the structural equations .227
Goodness of fit index .920
Adjusted goodness of fit index .882
Root mean square residual .056

* t ≥ 1.96

Figure VII-8 Factor Structure--Campus A

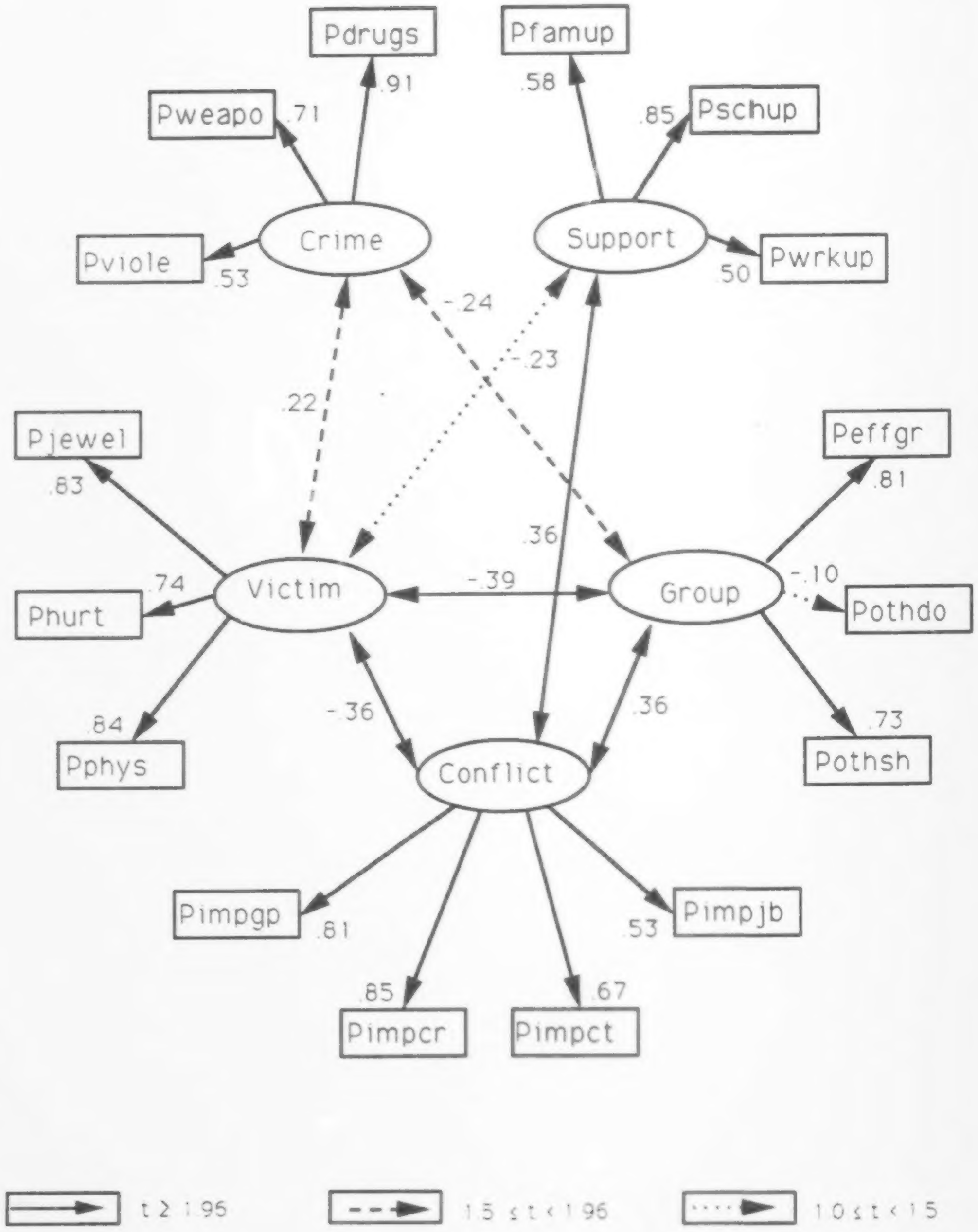
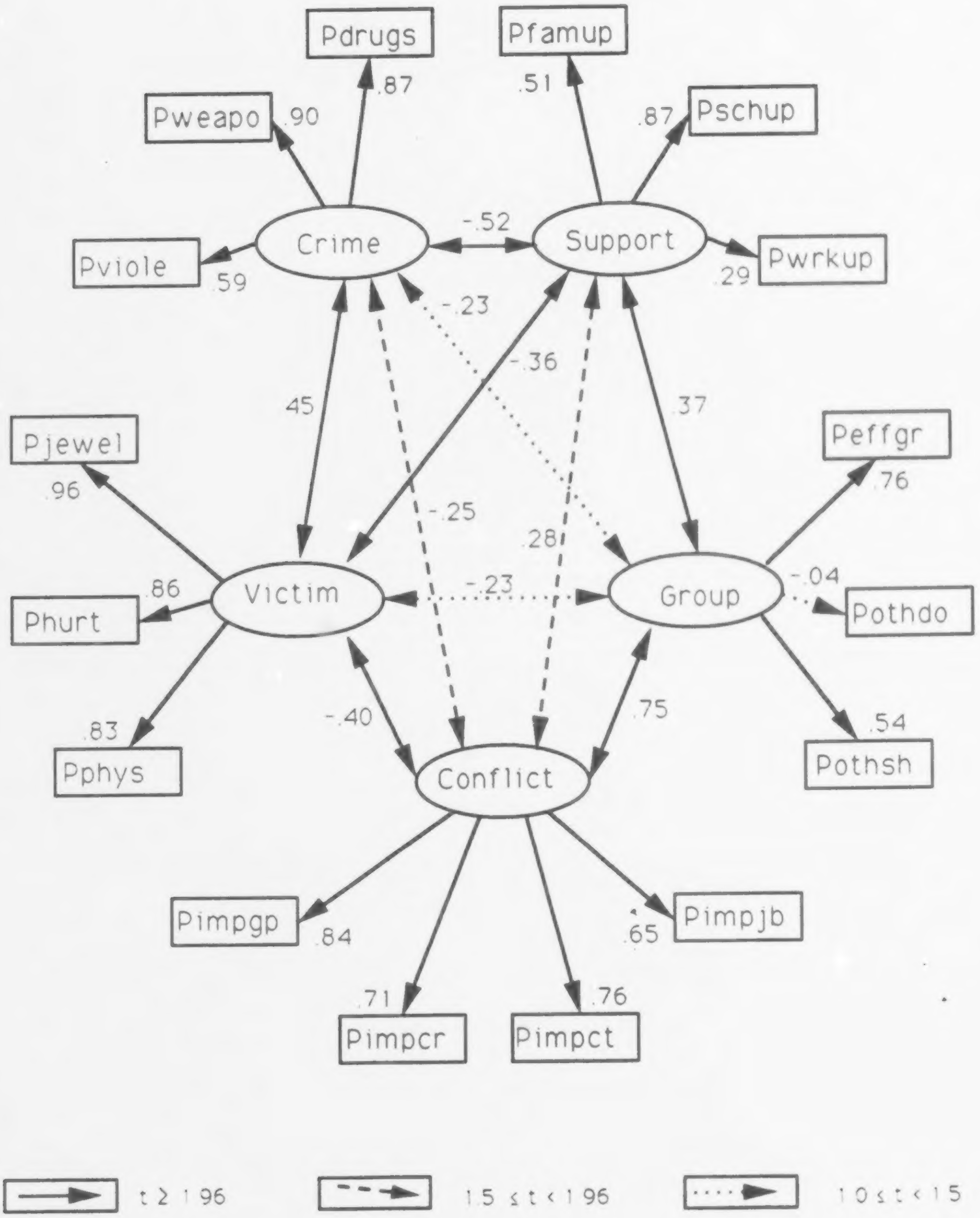

Pdrugs
Pfamup
Pweapo
.71
.91
.58
.85
Pschup
Crime
Support
Pviole
.53
Pwrkup
.50
-.24
-.23
.22
Pjewel
Peffgr
.83
.81
.36
Victim
-.39
Group
-.10
.74
Phurt
Pothdo
-.36
.36
.84
.73
Pphys
Conflict
Pothsh
Pimpgp
.81
.53
Pimpjb
.85
.67
Pimpcr
Pimpct
t ≥ 1.96
1.5 ≤ t < 1.96
1.0 ≤ t < 1.5

Figure VII-9 Factor Structure--Campus B


Pdrugs
Pfamup
.87
.51
Pweapo
.90
.87
Pschup
Crime
-.52
Support
Pviole
.59
Pwrkup
.29
-.23
-.36
45
.37
Pjewel
Peffgr
.96
.76
-.25
.28
.86
Victim
-.23
Group
-.04
Phurt
Pothdo
.75
-.40
.83
.54
Pphys
Conflict
Pothsh
Pimpjb
Pimpgp
.84
.65
.71
.76
Pimpcr
Pimpct
t ≥ 1.96
1.5 ≤ t < 1.96
1.0 ≤ t < 1.5

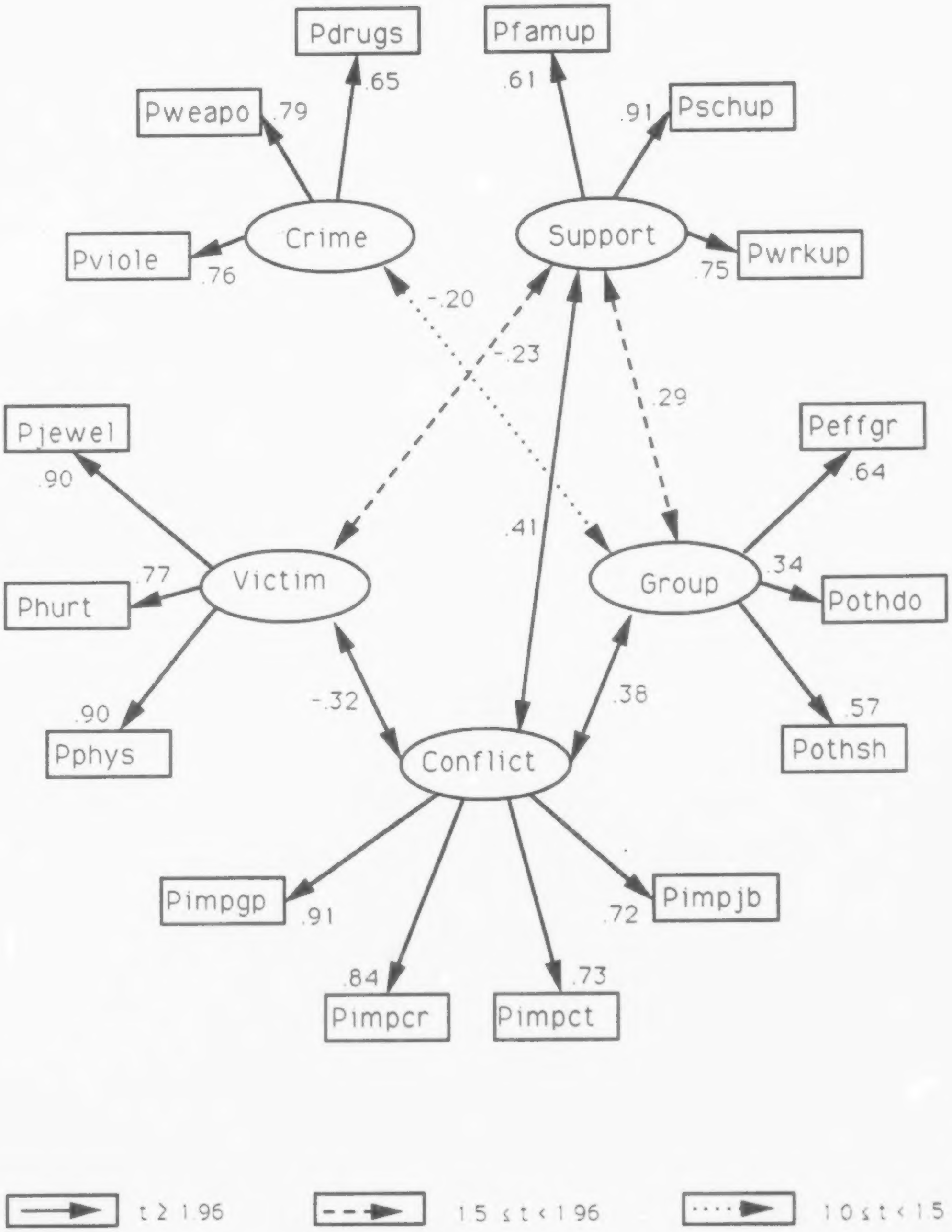

Pdrugs
Pfamup
Pweapo
.79
.65
.61
.91
Pschup
Crime
Support
Pviole
.76
Pwrkup
.75
-.20
-.23
.29
Pjewel
.90
Peffgr
.64
.41
Victim
.77
Phurt
Group
.34
Pothdo
.90
Pphys
-.32
.38
.57
Pothsh
Conflict
Pimpgp
.91
.72
Pimpjb
.84
Pimpcr
.73
Pimpct
t ≥ 1.96
1.5 ≤ t < 1.96
1.0 ≤ t < 1.5

Figure VII-10 Factor Structure--Campus C

Figure VII-11 Mean Factor Profiles

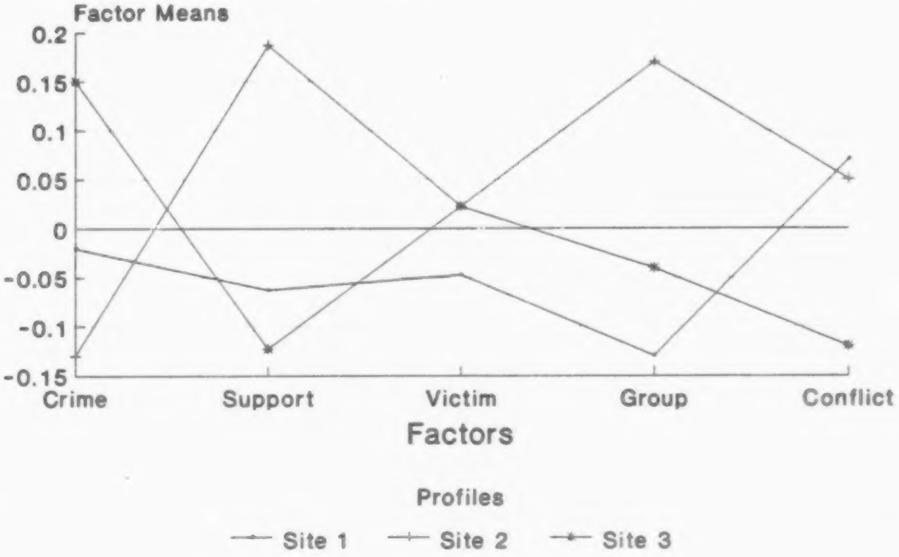


Table VII-1

Univariate Summary Statistics

VAR.	MEAN	SD	SKEWNESS	KURTOSIS	MIN.	FRQ.	MAX.	FRQ.
PFAMUP	3.425	1.255	-0.349	-0.702	1.0	37	5.0	94
PSCHUP	3.575	0.908	-0.477	0.471	1.0	11	5.0	51
PWRKUP	3.306	1.020	-0.367	-0.045	1.0	19	5.0	33
PFRIUP	3.559	0.923	-0.488	0.453	1.0	12	5.0	50
PGDQUA	3.480	0.647	-1.114	1.190	1.0	4	4.0	198
PUSELE	2.881	0.905	-0.271	-0.869	1.0	22	4.0	104
PNOGOO	3.106	0.945	-0.676	-0.648	1.0	23	4.0	157
PLUCK	3.884	1.071	-1.062	0.699	1.0	18	5.0	111
PWASTP	3.672	1.071	-0.557	-0.460	1.0	10	5.0	85
PPLANS	3.639	0.997	-0.582	-0.102	1.0	10	5.0	67
ACHIEV	44.789	9.200	-0.358	-0.299	21.0	1	66.5	1
PUPSET	2.918	1.510	0.593	-0.705	1.0	58	6.0	28
PTENSE	3.031	1.581	0.351	-1.064	1.0	69	6.0	27
PSAD	2.491	1.642	0.849	-0.530	1.0	140	6.0	28
PFELTD	2.835	1.468	0.593	-0.623	1.0	66	6.0	21
PCHEER	3.872	1.504	-0.338	-0.924	1.0	28	6.0	49
PWAKIN	3.277	1.485	0.123	-0.962	1.0	48	6.0	25
PLIFEF	3.559	1.484	0.039	-1.053	1.0	27	6.0	38
PSTABL	3.766	1.552	-0.173	-1.088	1.0	30	6.0	53
PYOUPE	4.341	1.332	-0.824	0.237	1.0	18	6.0	70
PYOUIL	4.511	1.310	-0.963	0.420	1.0	15	6.0	81
PWORR	4.313	1.605	-0.552	-0.874	1.0	22	6.0	120
GDQUAL	3.472	0.610	-0.857	0.509	1.0	5	4.0	456
USELES	2.781	0.909	-0.101	-0.959	1.0	57	4.0	216
NOGOOD	3.015	0.951	-0.509	-0.851	1.0	59	4.0	337
LUCK	3.939	0.989	-1.089	1.028	1.0	29	5.0	261
WASTEOF	3.691	1.033	-0.683	-0.103	1.0	27	5.0	185
PLANSUC	3.689	0.993	-0.696	0.193	1.0	29	5.0	173
UPSET	3.110	1.558	0.410	-1.040	1.0	115	6.0	75
TENSE	3.078	1.563	0.286	-1.063	1.0	157	6.0	63
SAD	2.774	1.739	0.573	-1.062	1.0	275	6.0	86
FELTDEP	2.901	1.501	0.462	-0.945	1.0	156	6.0	41
CHEER	3.941	1.473	-0.369	-0.908	1.0	54	6.0	118
WAKING	3.262	1.541	0.100	-1.119	1.0	129	6.0	61
LIFEFUL	3.638	1.521	-0.082	-1.074	1.0	74	6.0	102
STABLE	3.967	1.541	-0.417	-0.959	1.0	65	6.0	137

Table VII-1 (Continued)

VAR.	MEAN	SD	SKEWNESS	KURTOSIS	MIN.	FRQ.	MAX.	FRQ.
YOUPEP	4.420	1.282	-0.850	0.442	1.0	36	6.0	177
YOUILL	4.389	1.303	-0.774	0.036	1.0	32	6.0	167
WORRIED	4.237	1.607	-0.522	-0.840	1.0	65	6.0	261
PEFFGR	3.902	0.915	-0.758	0.608	1.0	7	5.0	95
POTHDO	3.254	1.189	-0.180	-0.815	1.0	29	5.0	60
POTHSH	3.677	0.946	-0.406	-0.354	1.0	4	5.0	68
PIMPGP	3.469	1.080	-0.375	-0.349	1.0	18	5.0	63
PIMPCR	3.252	1.141	-0.217	-0.508	1.0	30	5.0	54
PIMPEM	3.330	1.191	-0.328	-0.568	1.0	27	5.0	52
PIMPCT	3.327	1.194	-0.252	-0.718	1.0	29	5.0	67
PIMPJB	3.330	1.196	-0.243	-0.701	1.0	23	5.0	54
PDRUGS	1.45	0.743	1.713	2.536	1.0	237	4.0	11
PDRINK	1.541	0.746	1.265	0.969	1.0	209	4.0	7
PWEAPO	1.496	0.691	1.468	2.229	1.0	210	4.0	8
PVIOLE	1.661	0.736	0.845	0.072	1.0	171	4.0	5
PJEWEL	1.407	1.024	2.954	8.379	1.0	286	6.0	6
PHURT	1.382	0.958	2.986	8.801	1.0	284	6.0	4
PPHYS	1.331	0.968	3.226	9.876	1.0	307	6.0	4

Dictionary
(for Table VII-1)

Post-measures:	Lables:	Pre-measures:
PFAMUP	Family support	
PSCHUP	School support	
PWRKUP	Work/job Support	
PFRIUP	Friends support	
PGDQUA	Having good qualities	GDQUAL
PUSELE	Feel useless at times	USELES
PNOGOO	No good at all	NOGOOD
PLUCK	Good luck more important	LUCK
PWASTP	Planning is waste of time	WASTEOF
PPLANS	Make plans work out	PLANSUC
ACHIEV	Academic achievement	
PUPSET	Anxious, worried, upset past month	UPSET
PTENSE	Tense past month	TENSE
PSAD	Sad, discouraged, holpless past month	SAD
PFELTD	Depressed past month	FELTDEP
PCHEER	Cheerful past month	CHEER
PWAKIN	Waking up rested past month	WAKING
PLIFEF	Life full of interesting things past month	LIFEFUL
PSTABL	Emotionally stable past month	STABLE
PYOUPE	How much energy past month	YOUPEP
PYOUIL	Illness past month	YOUILL
PWORR	Worried about health past month	WORRIED
PEFFGR	Work more effectively in group last year	
POTHDO	Expect other members to do my share of work	
POTHSH	Put myself in the other person's shoes	
PIMPGP	Improvement in working in groups	
PIMPCR	Improvement in handling conflicts with friends and peers	
PIMPEM	Improvement in working with other employees	
PIMPCT	Improvement in handling conflicts with family	
PIMPJB	Improvement in handling conflicts on the job	
PDRUGS	Drugs used on campus	
PDRINK	Liquor, beer, wine on campus	
PWEAPO	Weapons on campus	
PVIOLE	Violence, student fighting, vandalism	
PJEWEL	Forced to hand over money or things	
PHURT	Afraid of being physically hurt	
PPHYS	Being physically attacked	

Table VII-2 Distribution of Missing Values

Number of missing values	Number of cases
0	13
1	69
2	37
3	17
4	20
5	4
6	4
7	1
8	3
9	2
10	0
11	1
12	6
13	0
14	1
15	1
16	0
17	24
18	77
19	32
20	22
21	13
22	5
23	1
24	1
25	1
26	3
27	0
28	0
29	53
30	536
31	49
32	10
33	8
34	2
35	4
36	2
37	2
38	4
39	3
40	4
41	18
42	2
43	2
44	1
45	0
46	8
47	56

Table VII-3a

T-tests between students who took both the pre- and post-test (Group 1) and students who took pre-test only (Group 2) for each campuson the variables used in the analysis from the pre-test

Campus A:

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
GDQUAL	3.44 (.57) 106	3.50 (.58) 252	-.85	356	.395
USELESS	2.62 (.90) 105	2.62 (.92) 245	-.05	348	.959
NOGOOD	2.93 (.93) 107	2.90 .99 245	.34	356	.735
LUCK	3.98 (.94) 107	4.02 (.96) 252	-.35	357	.726
WASTEOF	3.75 (.98) 106	3.69 (1.05) 252	.57	356	.568
PLANSUC	3.65 (.91) 107	3.78 (.98) 253	-1.13	358	.260
UPSET	3.14 (1.49) 102	3.37 (1.54) 241	-1.27	341	.206
TENSE	3.17 (1.32) 103	3.34 (1.55) 244	-1.00	345	.316
SAD	3.03 (1.70) 102	3.08 (1.81) 241	-.25	341	.799
FELTDEP	3.01 (1.44) 103	3.07 (1.50) 244	-.37	345	.713

Table VII-3a. (Continued)

Campus A:

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
CHEER	3.93 (1.42) 103	3.76 (1.53) 241	1.00	342	.317
WAKING	3.27 (1.37) 103	3.03 (1.53) 243	1.37	344	.171
LIFEFUL	3.53 (1.39) 103	3.45 (1.53) 242	.48	343	.634
STABLE	3.93 (1.39) 101	3.80 (1.53) 244	.72	343	.470
YOUPEP	4.38 (1.17) 100	4.36 (1.29) 244	.13	342	.897
YOUILL	4.31 (1.18) 104	4.31 (1.29) 242	.01	344	.990
WORRIED	4.28 (1.62) 102	3.97 (1.56) 242	1.69	342	.093

Table VII-3a. (Continued)

Campus B:

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
GDQUAL	3.49 (.56) 98	3.44 (.63) 212	.63	308	.531
USELESS	2.84 (.87) 94	2.77 (.89) 203	.65	295	.515
NOGOOD	3.01 (.94) 96	3.01 (.96) 211	.01	305	.994
LUCK	3.83 (1.11) 98	3.92 (.96) 216	-.73	312	.464
WASTEOF	3.81 (1.02) 97	3.56 (1.08) 212	1.94	307	.053
PLANSUC	3.67 (.98) 98	3.56 (1.03) 213	.89	309	.375
UPSET	2.84 (1.48) 95	3.23 (1.64) 208	-1.97	301	.050
TENSE	2.77 (1.51) 95	3.19 (1.65) 203	-2.09	296	.037
SAD	2.42 (1.53) 93	2.95 (1.73) 205	-2.52	296	.012
FELTDEP	2.71 (1.56) 93	3.06 (1.53) 204	-1.81	295	.071
CHEER	4.19 (1.61) 93	3.91 (1.49) 206	1.47	297	.142

Table VII-3a. (Continued)

Campus B:

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
WAKING	3.42 (1.75) 93	3.35 (1.55) 201	.35	292	.726
LIFEFUL	3.72 (1.67) 92	3.83 (1.43) 204	-.58	294	.559
STABLE	4.05 (1.63) 91	3.97 (1.50) 203	.46	292	.646
YOUPEP	4.60 (1.34) 94	4.40 (1.31) 207	1.22	299	.224
YOUILL	4.62 (1.41) 95	4.40 (1.34) 208	1.32	301	.189
WORRIED	4.57 (1.64) 94	4.17 (1.64) 205	1.98	297	.049

Table VII-3a. (Continued)

Campus C:

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
GDQUAL	3.47 (.67) 131	3.49 (.61) 221	-.40	350	.693
USELESS	2.78 (.91) 127	2.92 (.89) 213	-1.39	338	.164
NOGOOD	2.97 (.96) 131	3.13 (.93) 219	-1.57	348	.117
LUCK	4.08 (.83) 133	3.85 (1.01) 224	2.14	355	.033
WASTEOF	3.66 (1.12) 129	3.78 (1.00) 223	-1.01	350	.311
PLANSUC	3.69 (1.01) 133	3.75 (1.02) 223	-.51	354	.607
UPSET	2.94 (1.49) 130	2.84 (1.54) 215	.57	343	.568
TENSE	2.82 (1.43) 130	2.83 (1.59) 212	-.04	340	.967
SAD	2.68 (1.75) 130	2.46 (1.75) 212	1.14	340	.254
FELTDEP	2.71 (1.47) 130	2.65 (1.48) 212	.37	340	.709
CHEER	3.87 (1.35) 129	4.14 (1.44) 210	-1.75	337	.082

Table VII-3a. (Continued)

Campus C:

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
WAKING	3.33 (1.51) 125	3.37 (1.55) 210	-.22	333	.823
LIFEFUL	3.47 (1.54) 129	3.76 (1.54) 207	-1.72	334	.086
STABLE	3.86 (1.56) 128	4.04 (1.63) 208	-1.02	334	.307
YOUPEP	4.41 (1.24) 132	4.48 (1.35) 217	-.52	347	.604
YOUILL	4.29 (1.37) 133	4.42 (1.30) 217	-.86	348	.389
WORRIED	4.40 (1.75) 132	4.28 (1.65) 212	.66	342	.511

Table VII-3b

T-tests between students who attended school for three consecutive cycles (Group 1) and those who were absent for at least one cycle during the three consecutive cycles (Group 2) beginning from cycle 4, 5, and 6, respectively

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
Amark4[a]	71.67 (13.11) 120	70.69 (12.81) 177	.64	295	.525
Bmark4	71.25 (12.57) 88	73.43 (13.11) 149	-1.26	235	.210
Cmark4	70.03 (12.56) 88	71.68 (13.33) 147	-.94	233	.350
Dmark4	73.36 (13.43) 132	74.37 (13.31) 180	-.66	310	.511
Emark4	73.89 (12.94) 131	73.79 (13.34) 171	.06	300	.950
Fmark4	71.76 (13.24) 130	70.75 (13.40) 169	.65	297	.514
Amark5	75.46 (13.81) 169	72.94 (13.21) 203	1.79	370	.073
Bmark5	74.89 (12.49) 193	71.43 (12.76) 229	2.80	420	.005
Cmark5	74.46 (12.46) 111	71.59 (13.70) 195	1.82	304	.070

Note [a]This means a student's grade for Class A in cycle 4.

Table VII-3b (Continued)

Variables	Group 1 Mean (SD) Cases	Group 2 Mean (SD) Cases	t	df	2-tail P
Dmark5	73.01 (12.31) 117	72.56 (12.94) 188	.30	303	.764
Emark5	74.51 (13.89) 190	70.24 (12.87) 203	3.16	391	.002
Fmark5	73.35 (13.79) 188	70.70 (13.24) 209	1.95	395	.052
Amark6	74.43 (14.27) 155	70.06 (12.98) 182	2.94	335	.004
Bmark6	77.11 (12.75) 151	74.39 (13.36) 148	1.80	297	.073
Cmark6	72.69 (12.05) 77	76.21 (10.94) 98	-2.02	173	.044
Dmark6	75.85 (10.48) 86	78.97 (10.82) 96	-1.97	180	.050
Emark6	76.07 (13.57) 147	76.00 (12.90) 102	.04	247	.965
Fmark6	76.82 (13.25) 123	75.67 (12.90) 88	.63	209	.530

Table VII-4

ML Estimates of MODEL I (Unstandardized)

Coefficients	ML Estimates	Standard Error	T-value
LAMBDA Y			
Lambda 1,1	.969	.256	3.786
Lambda 2,1	1.000	.000	.000
Lambda 3,1	.820	.209	3.926
Lambda 4,1	.717	.188	3.805
Lambda 5,2	-.060	.146	-.414
Lambda 6,2	1.000	.000	.000
Lambda 7,2	1.034	.202	5.130
Lambda 5,3	.470	.166	2.826
Lambda 8,3	.778	.222	3.502
Lambda 9,3	1.000	.000	.000
Lambda 10,3	.435	.195	2.228
Lambda 11,4	1.000	.000	.000
Lambda 12,5	1.000	.000	.000
Lambda 13,5	1.190	.242	4.927
Lambda 14,5	1.165	.247	4.708
Lambda 15,5	1.068	.222	4.803
Lambda 16,6	1.276	.249	5.121
Lambda 17,6	.937	.227	4.126
Lambda 18,6	1.000	.000	.000
Lambda 19,6	1.150	.244	4.712
Lambda 20,6	.518	.200	2.596
Lambda 20,7	.256	.288	.887
Lambda 21,7	1.000	.000	.000
Lambda 22,7	1.850	.638	2.900
LAMBDA X			
Lambda 1,1	-.026	.155	-.165
Lambda 2,1	1.000	.000	.000
Lambda 3,1	1.071	.250	4.284
Lambda 1,2	.462	.214	2.159
Lambda 4,2	.580	.264	2.201
Lambda 5,2	1.000	.000	.000
Lambda 6,2	.831	.288	2.885
Lambda 7,3	1.000	.000	.000
Lambda 8,3	1.000	.209	4.775
Lambda 9,3	1.199	.235	5.100
Lambda 10,3	1.055	.204	5.185
Lambda 11,4	1.160	.244	4.764
Lambda 12,4	.829	.233	3.554
Lambda 13,4	1.000	.000	.000
Lambda 14,4	1.158	.249	4.653
Lambda 15,4	.327	.192	1.704
Lambda 15,5	.534	.330	1.618
Lambda 16,5	1.000	.000	.000
Lambda 17,5	1.710	.597	2.865

Table VII-4 (Continued)

Coefficients		ML Estimates	Standard Error	T-value
	Lambda 18,6	1.000	.000	.000
	Lambda 19,6	-.148	.252	-.588
	Lambda 20,6	.847	.326	2.598
	Lambda 21,7	.948	.138	6.849
	Lambda 22,7	.928	.149	6.244
	Lambda 23,7	1.000	.000	.000
	Lambda 24,7	.874	.159	5.485
	Lambda 25,7	.920	.158	5.829
BETA				
	Beta 2,1	.309	.164	1.890
	Beta 3,1	.113	.209	.544
	Beta 5,1	-.275	.253	-1.089
	Beta 6,1	.327	.244	1.339
	Beta 7,1	.027	.184	.146
	Beta 3,2	.125	.241	.518
	Beta 5,2	-.402	.227	-1.770
	Beta 6,2	.292	.235	1.244
	Beta 4,3	4.134	1.848	2.236
	Beta 2,4	.021	.012	1.832
	Beta 6,4	.026	.015	1.712
	Beta 3,5	.030	.226	.133
	Beta 7,5	-.485	.202	-2.409
	Beta 3,7	.101	.330	.308
GAMMA				
	Gamma 2,1	.341	.192	1.777
	Gamma 1,2	-.017	.261	-.066
	Gamma 2,2	.114	.257	.445
	Gamma 3,2	.652	.313	2.083
	Gamma 1,3	-.171	.116	-1.474
	Gamma 5,3	.392	.157	2.492
	Gamma 1,4	.024	.134	.180
	Gamma 6,4	.285	.156	1.832
	Gamma 7,5	-.020	.197	-.101
	Gamma 1,6	.096	.196	.487
	Gamma 2,6	.006	.176	.035
	Gamma 3,6	.141	.213	.662
	Gamma 1,7	.246	.140	1.755
	Gamma 5,7	.150	.161	.931
	Gamma 6,7	-.069	.158	-.437
	Gamma 7,7	.014	.120	.117
PSI				
	Psi 1,1	.419	.143	2.929
	Psi 2,2	.334	.118	2.823
	Psi 3,3	.323	.164	1.974
	Psi 4,4	71.589	14.478	4.945
	Psi 5,5	.613	.246	2.494
	Psi 6,6	.621	.246	2.524
	Psi 7,7	.231	.146	1.582

Table VII-4 (Continued)

Coefficients	ML Estimates	Standard Error	T-value
THETA EPS (TE)			
TE 1,1	1.059	.229	4.619
TE 2,2	.275	.106	2.603
TE 3,3	.671	.148	4.525
TE 4,4	.570	.124	4.607
TE 5,5	.291	.067	4.342
TE 6,6	.271	.105	2.587
TE 7,7	.307	.114	2.707
TE 8,8	.762	.173	4.405
TE 9,9	.512	.167	3.070
TE 10,10	.874	.173	5.058
TE 11,11	.500	.000	.000
TE 12,12	1.237	.275	4.502
TE 13,13	1.023	.261	3.927
TE 14,14	1.279	.301	4.249
TE 15,15	.964	.234	4.126
TE 16,16	.662	.223	2.976
TE 17,17	1.345	.287	4.681
TE 18,18	1.219	.270	4.516
TE 19,19	1.111	.268	4.140
TE 20,20	1.445	.284	5.092
TE 21,21	1.233	.276	4.477
TE 22,22	.925	.525	1.761
THETA DELTA (TD)			
TD 1,1	.288	.064	4.532
TD 2,2	.292	.121	2.412
TD 3,3	.293	.135	2.163
TD 4,4	.837	.170	4.927
TD 5,5	.649	.169	3.834
TD 6,6	.697	.159	4.373
TD 7,7	1.201	.274	4.385
TD 8,8	1.217	.277	4.396
TD 9,9	1.262	.312	4.043
TD 10,10	.887	.227	3.914
TD 11,11	.763	.237	3.225
TD 12,12	1.657	.343	4.823
TD 13,13	1.268	.289	4.384
TD 14,14	.974	.266	3.658
TD 15,15	1.336	.266	5.016
TD 16,16	1.243	.277	4.489
TD 17,17	1.247	.465	2.679
TD 18,18	.284	.201	1.417
TD 19,19	1.402	.266	5.276
TD 20,20	.507	.169	3.008
TD 21,21	.341	.092	3.696
TD 22,22	.512	.120	4.280
TD 23,23	.501	.123	4.085
TD 24,24	.726	.156	4.666
TD 25,25	.655	.145	4.519

Table VII-5

Squared Multiple Correlation Coefficients--Reliability Indices[a] (Model I)

Y-variables	R-square	X-variables	R-square
Pfamup	.328	Gdqual	.226
Pschup	.666	Useless	.646
Pwrkup	.355	Nogood	.676
Pfriup	.331	Luck	.144
Pgdqua	.306	Wasteof	.392
Pusele	.681	Plansuc	.293
Pnogoo	.668	Upset	.505
Pluck	.338	Tense	.502
Pwastp	.557	Sad	.583
Pplans	.122	Feltdep	.606
Achieve	.994	Cheer	.649
Pupset	.466	Waking	.303
Ptense	.599	Lifeful	.452
Psad	.534	Stable	.590
Pfeltd	.561	Youpep	.187
Pcheer	.715	Youill	.269
Pwakin	.400	Worried	.517
Plifef	.456	Peffgr	.656
Pstabl	.549	Pothdo	.008
Pyoupe	.195	Pothsh	.433
Pyouil	.284	Pimpgp	.708
Pworri	.645	Pimpcr	.607
		Pimpem	.647
		Pimpct	.491
		Pimpjb	.542

Note

[a] The squared multiple correlation coefficients are the lower bounds of reliability for each of the variables. Since the specific components of reliability are not included. In psychometrics, they are R-squares between the items and the true scores.

Table VII-6

Power Analyses for Ten Parameters[a] (Model I)

Parameters	H1:	H0:	Alpha[b]	Df	Lambda[c]	Power
Gamma(1,7)	.25	0	.05	1	2.78	.39
Beta(5,1)	-.28	0	.05	1	1.46	.23
Beta(6,1)	.33	0	.05	1	2.35	.33
Beta(5,2)	-.40	0	.05	1	3.68	.48
Beta(6,2)	.29	0	.05	1	1.90	.28
Beta(2,4)	.02	0	.05	1	2.42	.34
Beta(6,4)	.03	0	.05	1	4.06	.52
Gamma(1,3)	-.17	0	.05	1	1.87	.28
Gamma(2,2)	.11	0	.05	1	.15	.07
Gamma(6,4)	.29	0	.05	1	4.17	.53

Note

[a] The power analysis is conducted for each of the ten parameters under the assumption that H1, the alternative hypothesis, is true, while H0 is being tested. The values of power are obtained from the program of Lispower by Joreskog and sorbom (1989).

[b] Alpha is the significance level for each test.

[c] Lambda is the non-centrality parameter for each test.

Table VII-7 Total Effects for Model I

Total effects of ETA on ETA

	Psupport	Pesteem	Pcontrol	Achieve	Pnmentl	Ppmentl	Pphys
Psupport	.000	.000	.000	.000	.000	.000	.000
Pesteem	.324	.012	.088	.021	-.002	.000	.009
Pcontrol	.164	.134	.012	.003	-.019	.000	.103
Achieve	.680	.556	4.182	.012	-.080	.000	.424
Pnmentl	-.405	-.407	-.036	-.009	.001	.000	-.004
Ppmentl	.439	.310	.137	.033	-.003	.000	.014
Pphysic	.224	.197	.017	.004	-.486	.000	.002

Standard errors for the total effects of ETA on ETA

	Psupport	Pesteem	Pcontrol	Achieve	Pnmentl	Ppmentl	Pphys
Psupport	.000	.000	.000	.000	.000	.000	.000
Pesteem	.167	.019	.060	.012	.013	.000	.030
Pcontrol	.190	.234	.019	.005	.144	.000	.334
Achieve	.833	.953	1.876	.019	.595	.000	1.389
Pnmentl	.250	.230	.031	.007	.005	.000	.012
Ppmentl	.238	.238	.086	.015	.019	.000	.046
Pphysic	.202	.130	.016	.003	.202	.000	.006

Total effects of KSI on ETA

	Resteem	Rcontrol	Rnmentl	Rpmentl	Rphysic	Group	Conf
Psupport	.000	-.017	-.171	.024	.000	.096	.246
Pesteem	.345	.168	-.056	.008	.000	.050	.080
Pcontrol	.046	.672	-.036	.004	-.002	.159	.039
Achieve	.189	2.779	-.148	.016	-.008	.657	.162
Pnmentl	-.139	-.063	.461	-.010	.000	-.046	.050
Ppmentl	.106	.117	-.076	.295	.000	.063	.039
Pphysic	.067	.030	-.228	.005	-.020	.025	-.004

Standard errors for the effects of KSI on ETA

	Resteem	Rcontrol	Rnmentl	Rpmentl	Rphysic	Group	Conf
Psupport	.000	.261	.116	.134	.000	.196	.140
Pesteem	.195	.273	.047	.044	.002	.183	.060
Pcontrol	.086	.314	.064	.023	.021	.216	.061
Achieve	.352	1.739	.273	.095	.088	.928	.260
Pnmentl	.108	.151	.164	.055	.001	.104	.154
Ppmentl	.100	.157	.065	.164	.003	.105	.153
Pphysic	.057	.079	.113	.030	.197	.057	.121

Table VII-8

ML Estimates of Variances and Covariances of Exogenous Variables for Model I

Coefficients (PHI)	ML Estimates (Unstandardized)	ML Estimates (Standardized)	Standard Error	T-value
Phi 2,1	.234	.495	.108	2.167
Phi 3,1	-.341	-.422	.153	-2.232
Phi 4,1	.241	.322	.136	1.774
Phi 5,1	.153	.311	.107	1.440
Phi 6,1	.107	.198	.097	1.098
Phi 7,1	.115	.165	.113	1.018
Phi 3,2	-.204	-.284	.141	-1.439
Phi 4,2	.269	.407	.141	1.911
Phi 5,2	.137	.315	.105	1.313
Phi 6,2	.177	.373	.105	1.693
Phi 7,2	.252	.406	.125	2.008
Phi 4,3	-.418	-.369	.209	-2.004
Phi 5,3	-.572	-.765	.231	-2.477
Phi 6,3	-.123	-.151	.142	-.869
Phi 7,3	-.159	-.149	.168	-.942
Phi 5,4	.189	.273	.147	1.288
Phi 6,4	.181	.241	.136	1.330
Phi 7,4	.246	.251	.163	1.509
Phi 6,5	.075	.151	.103	.732
Phi 7,5	.070	.109	.120	.587
Phi 7,6	.276	.392	.129	2.137
Phi 1,1	.534		.182	2.940
Phi 2,2	.418		.198	2.109
Phi 3,3	1.227		.427	2.871
Phi 4,4	1.046		.400	2.614
Phi 5,5	.456		.263	1.731
Phi 6,6	.542		.243	2.232
Phi 7,7	.918		.263	3.494

ML Estimates of Variances of Endogenous Variables
(Unstandardized)

Variables	ML Estimates
Psupport	.549
Pesteem	.579
Pcontrol	.643
Achieve	84.262
Pnmentl	1.080
Ppmentl	1.023
Pphysic	.490

Table VII-9

Squared Multiple Correlation Coefficients for Structural Equations of Model I[a]

Latent Endogenous Variables	R-square
Psupport	.238
Pesteem	.422
Pcontrol	.497
Achieve	.150
Pnmentl	.433
Ppmentl	.393
Pphysic	.529

Total Coefficient of Determination for the Structural Equations[b] .... .739

Model Fit Assessment

Fit Function	Fit Value	P-value
Chi-square with df 981	500.070	1.00
Goodness of fit index	.768	
Adjusted GFI	.733	
Root mean square residual	.273	

Note

[a] These values represent the variances explained by each of the structural equations as specified.

[b] This value represents the total variance explained by the entire structural model as specified.

Appendix

Additional Tables

Table VII-10

ML Estimates of Model II (Unstandardized)

Coefficients	ML Estimates	Standard Error	T-value
LAMBDA Y			
Lambda 1,1	1.000	.000	.000
Lambda 2,1	1.055	.101	10.441
Lambda 3,1	.998	.100	9.965
Lambda 4,1	.796	.103	7.737
Lambda 5,2	1.189	.110	10.832
Lambda 6,2	1.000	.000	.000
Lambda 7,2	1.136	.107	10.595
Lambda 8,3	-.101	.129	-.783
Lambda 9,3	1.000	.000	.000
Lambda 10,3	1.017	.133	7.653
Lambda 8,4	.933	.214	4.361
Lambda 11,4	1.000	.000	.000
Lambda 12,4	1.192	.194	6.159
Lambda 13,4	.526	.165	3.195
Lambda 14,5	.871	.113	7.707
Lambda 15,5	.955	.113	8.431
Lambda 16,5	.960	.113	8.476
Lambda 17,5	1.000	.000	.000
Lambda 18,5	-.177	.089	-1.984
Lambda 18,6	1.108	.144	7.673
Lambda 19,6	1.000	.000	.000
Lambda 20,6	1.089	.142	7.673
Lambda 21,6	.936	.138	6.801
LAMBDA X			
Lambda 1,1	-.041	.147	-.275
Lambda 2,1	1.000	.000	.000
Lambda 3,1	1.091	.156	7.010
Lambda 1,2	.765	.216	3.538
Lambda 4,2	.628	.166	3.783
Lambda 5,2	1.000	.000	.000
Lambda 6,2	.855	.177	4.819
Lambda 7,3	.856	.104	8.269
Lambda 8,3	.861	.103	8.323
Lambda 9,3	.964	.103	9.352
Lambda 10,3	1.000	.000	.000
Lambda 11,4	1.000	.000	.000
Lambda 12,4	-.114	.123	-.930
Lambda 13,4	.889	.194	4.585
Lambda 14,5	1.085	.103	10.486
Lambda 15,5	1.039	.104	10.014
Lambda 16,5	1.000	.000	.000
Lambda 17,5	.908	.105	8.614
Lambda 18,5	.950	.105	9.067

Table VII-10 (Continued)

Coefficients		ML Estimates	Standard Error	T-value
BETA				
	Beta 2,1	.089	.089	.995
	Beta 3,2	-.089	.106	-.834
	Beta 4,2	-.224	.089	-2.505
	Beta 5,2	.187	.093	2.009
	Beta 4,3	.142	.108	1.314
	Beta 5,3	-.369	.106	-3.473
	Beta 6,3	.278	.105	2.639
	Beta 4,5	.008	.126	.061
GAMMA				
	Gamma 1,1	.028	.136	.207
	Gamma 2,1	-.119	.124	-.967
	Gamma 3,1	.375	.140	2.683
	Gamma 4,1	-.093	.118	-.786
	Gamma 5,1	.179	.125	1.426
	Gamma 6,1	-.081	.124	-.651
	Gamma 1,2	-.359	.207	-1.735
	Gamma 2,2	-.196	.196	-1.000
	Gamma 3,2	.113	.208	.543
	Gamma 4,2	.554	.192	2.890
	Gamma 5,2	-.067	.176	-.381
	Gamma 6,2	.317	.177	1.796
	Gamma 1,3	.043	.108	.397
	Gamma 2,3	-.147	.098	-1.491
	Gamma 3,3	.025	.108	.234
	Gamma 4,3	-.051	.121	-.418
	Gamma 5,3	.611	.109	5.590
	Gamma 6,3	-.093	.094	-.995
	Gamma 1,4	-.059	.126	-.471
	Gamma 2,4	.039	.112	.344
	Gamma 3,4	-.016	.122	-.130
	Gamma 4,4	.109	.097	1.118
	Gamma 5,4	.111	.107	1.040
	Gamma 6,4	.107	.108	.992
	Gamma 1,5	-.013	.114	-.113
	Gamma 2,5	-.290	.106	-2.735
	Gamma 3,5	.239	.118	2.018
	Gamma 4,5	-.029	.095	-.301
	Gamma 5,5	.158	.104	1.523
	Gamma 6,5	-.094	.101	-.927
PSI				
	Psi 1,1	.572	.106	5.375
	Psi 2,2	.465	.092	5.080
	Psi 3,3	.467	.100	4.672
	Psi 4,4	.119	.052	2.271
	Psi 5,5	.276	.068	4.064
	Psi 6,6	.353	.085	4.161

(Continue to the next page)

Table VII-10 (Continued)

Coefficients	ML Estimates	Standard Error	T-value
THETA EPS (TE)			
TE 1,1	.364	.058	6.232
TE 2,2	.292	.055	5.308
TE 3,3	.366	.059	6.260
TE 4,4	.597	.077	7.762
TE 5,5	.191	.048	3.943
TE 6,6	.428	.059	7.229
TE 7,7	.261	.050	5.239
TE 8,8	.723	.098	7.382
TE 9,9	.348	.082	4.246
TE 10,10	.325	.083	3.922
TE 11,11	.642	.090	7.114
TE 12,12	.519	.000	.000
TE 13,13	.901	.108	8.365
TE 14,14	.552	.075	7.332
TE 15,15	.463	.069	6.741
TE 16,16	.457	.068	6.692
TE 17,17	.410	.065	6.281
TE 18,18	.342	.063	5.427
TE 19,19	.523	.075	6.977
TE 20,20	.434	.070	6.210
TE 21,21	.582	.079	7.348
THETA DELTA (TD)			
TD 1,1	.785	.103	7.601
TD 2,2	.396	.087	4.547
TD 3,3	.281	.094	2.990
TD 4,4	.846	.105	8.062
TD 5,5	.609	.095	6.403
TD 6,6	.714	.098	7.304
TD 7,7	.529	.072	7.305
TD 8,8	.524	.072	7.273
TD 9,9	.404	.063	6.379
TD 10,10	.358	.061	5.893
TD 11,11	.394	.130	3.021
TD 12,12	.992	.115	8.635
TD 13,13	.521	.114	4.582
TD 14,14	.300	.049	6.087
TD 15,15	.359	.054	6.683
TD 16,16	.405	.058	7.047
TD 17,17	.510	.067	7.613
TD 18,18	.463	.063	7.392

Table VII-11

Squared Multiple Crrelation Coefficients--
Reliability Indices (Model II)

Y-variables	R-square	X-variables	R-square
Pdrugs	.636	Gdqua	.215
Pdrink	.708	Useless	.604
Pweapo	.634	Nogood	.719
Pviole	.403	Luck	.154
Pjewel	.809	Wasteof	.391
Phurt	.572	Plansuc	.286
Pphys	.739	Upset	.471
Pgdqua	.277	Tense	.476
Pusele	.652	Sad	.596
Pnogoo	.675	Feltdep	.642
Pluck	.358	Peffgr	.606
Pwastp	.495	Pothdo	.008
Pplans	.099	Pothsh	.479
Pupset	.448	Pimpgp	.700
Ptense	.537	Pimpem	.641
Psad	.543	Pimpcr	.595
Pfeltd	.590	Pimpct	.490
Pcheer	.657	Pimpjb	.537
Plifef	.477		
Pstabl	.566		
Pwakin	.418		

Table VII-12

Squared Multiple Correlation Coefficients for Structural Equations for Model II

Latent Endogenous Variables	R-square
Pcrime	.100
Pvictim	.187
Pesteem	.283
Pcontrol	.668
Pnmentl	.532
Ppmentl	.259

Total Coefficient of Determination for the Structural Equations.......................... .830

Model Fit Assessment

Fit Function	Fit Value	P-value
Chi-square with df 652	789.570	0.000
Goodness of fit index	.811	
Adjusted GFI	.773	
Root mean square residual	.058	

Table VII-13

ML Estimates of Variances and Covariances of Exogenous Variables for Model II

Coefficients (PHI)	ML Estimates (Unstandardized)	ML Estimates (Standardized)	Standard Error	T-value
Phi 2,1	.247	.509	.070	3.521
Phi 3,1	-.272	-.437	.072	-3.778
Phi 4,1	.118	.195	.068	1.747
Phi 5,1	.092	.154	.059	1.557
Phi 3,2	-.154	-.308	.062	-2.498
Phi 4,2	.193	.396	.067	2.862
Phi 5,2	.194	.402	.061	3.190
Phi 4,3	-.104	-.167	.067	-1.547
Phi 5,3	-.103	-.167	.060	-1.726
Phi 5,4	.233	.388	.069	3.370
Phi 1,1	.604		.129	4.667
Phi 2,2	.391		.112	3.502
Phi 3,3	.642		.117	5.503
Phi 4,4	.606		.162	3.745
Phi 5,5	.595		.111	5.371

ML Estimates of Variances of Endogenous Variables (Unstandardized)

Variables	ML Estimates
Pcrime	.636
Pvictim	.572
Pesteem	.652
Pcontrol	.358
Pnmentl	.590
Ppmentl	.477

Table VII-14

ML Estimates of the Factor Structures--Campus A (Unstandardized)

Coefficients	ML Estimates	Standard Error	T-value
LAMBDA X			
Lambda 1,1	1.00	.00	.00
Lambda 2,1	.94	.21	4.54
Lambda 3,1	.72	.19	3.78
Lambda 4,2	.95	.27	3.47
Lambda 5,2	1.00	.00	.00
Lambda 6,2	.60	.19	3.18
Lambda 7,3	1.18	.19	6.26
Lambda 8,3	1.00	.00	.00
Lambda 9,3	1.01	.16	6.30
Lambda 10,4	1.00	.00	.00
Lambda 11,4	-.15	.19	-.78
Lambda 12,4	.92	.24	3.81
Lambda 13,5	1.11	.20	5.50
Lambda 14,5	1.35	.24	5.59
Lambda 15,5	1.00	.00	.00
Lambda 16,5	.78	.20	3.90
THETA DELTA (TD)			
Pdrugs	.06	.06	1.09
Pweapo	.25	.06	3.89
Pviole	.39	.07	5.35
Pfamup	.92	.20	4.62
Pschup	.20	.13	1.52
Pwrkup	.56	.11	5.14
Pjewel	.33	.09	3.49
Phurt	.42	.09	4.61
Pphys	.22	.07	3.29
Peffgr	.30	.16	1.91
Pothdo	1.21	.21	5.86
Pothsh	.42	.14	2.94
Pimpgp	.34	.09	3.69
Pimpcr	.38	.12	3.14
Pimpct	.67	.13	5.05
Pimpjb	.83	.15	5.47
TAU X (TX)			
TX 1	1.28	.08	16.38
TX 2	1.39	.07	18.52
TX 3	1.53	.07	21.28
TX 4	3.53	.13	27.87
TX 5	3.80	.10	36.46
TX 6	3.45	.10	36.02
TX 7	1.39	.12	11.52
TX 8	1.32	.10	13.82

Table VII-14 (Continued)

Coefficients	ML Estimates	Standard Error	T-value
TX 9	1.30	.11	11.30
TX 10	4.08	.09	43.70
TX 11	3.27	.11	31.05
TX 12	3.87	.10	39.80
TX 13	3.55	.12	28.83
TX 14	3.30	.13	24.59
TX 15	3.47	.12	27.85
TX 16	3.42	.12	29.72
KAPPA (KA)			
KA 1	.09	.10	.88
KA 2	-.26	.14	-1.84
KA 3	-.02	.14	-.11
KA 4	-.29	.14	-2.06
KA 5	.00	.14	.02

Table VII-15

ML Estimates of Factor Variances and Covariances for Campus A (Unstandardized)

Coefficients (PHI)	ML Estimates	Standard Error	T-value
Phi 2,1	.05	.06	.83
Phi 3,1	.08	.06	1.51
Phi 4,1	-.10	.06	-1.54
Phi 5,1	.02	.06	.27
Phi 3,2	-.12	.08	-1.48
Phi 4,2	.07	.09	.79
Phi 5,2	.19	.09	2.20
Phi 4,3	-.21	.09	-2.34
Phi 5,3	-.19	.08	-2.22
Phi 5,4	.20	.09	2.14
Phi 1,1	.29	.08	3.63
Phi 2,2	.51	.17	2.97
Phi 3,3	.51	.15	3.36
Phi 4,4	.59	.20	2.93
Phi 5,5	.54	.18	2.92

Assessment of fit for Campus A:

Goodness of fit index: .846
Root mean square residual: .078

Table VII-16

ML Estimates of Factor Structures--Campus B (Unstandardized)

Coefficients	ML Estimates	Standard Error	T-value
LAMBDA X			
Lambda 1,1	1.00	.00	.00
Lambda 2,1	1.00	.13	7.87
Lambda 3,1	.70	.14	5.10
Lambda 4,2	.82	.20	4.05
Lambda 5,2	1.00	.00	.00
Lambda 6,2	.42	.19	2.22
Lambda 7,3	1.45	.14	10.57
Lambda 8,3	1.00	.00	.00
Lambda 9,3	1.37	.15	8.84
Lambda 10,4	1.00	.00	.00
Lambda 11,4	-.08	.29	-.29
Lambda 12,4	.78	.23	3.32
Lambda 13,5	1.04	.16	6.60
Lambda 14,5	.83	.15	5.64
Lambda 15,5	1.00	.00	.00
Lambda 16,5	.84	.16	5.19
THETA DELTA (TD)			
TD 1,1	.11	.04	2.89
TD 2,2	.08	.03	2.21
TD 3,3	.32	.06	5.50
TD 4,4	1.16	.22	5.35
TD 5,5	.20	.00	.00
TD 6,6	1.11	.19	5.73
TD 7,7	.09	.06	1.66
TD 8,8	.17	.04	4.39
TD 9,9	.40	.08	4.78
TD 10,10	.29	.12	2.52
TD 11,11	1.62	.28	5.87
TD 12,12	.59	.12	4.97
TD 13,13	.43	.12	3.58
TD 14,14	.65	.13	4.91
TD 15,15	.66	.15	4.49
TD 16,16	.89	.17	5.17
TAU X (TX)			
TX 1	1.28	.08	16.38
TX 2	1.39	.07	18.52
TX 3	1.53	.07	21.28
TX 4	3.53	.13	27.87
TX 5	3.80	.10	36.46
TX 6	3.45	.10	36.02
TX 7	1.39	.12	11.52
TX 8	1.32	.10	13.82
TX 9	1.30	.11	11.30
TX 10	4.08	.09	43.70

Table VII-16 (Continued)

Coefficients	ML Estimates	Standard Error	T-value
TX 11	3.27	.11	31.05
TX 12	3.87	.10	39.80
TX 13	3.55	.12	28.83
TX 14	3.30	.13	24.59
TX 15	3.47	.12	27.85
TX 16	3.42	.12	29.72
KAPPA (KA)			
KA 1	.00		
KA 2	.00		
KA 3	.00		
KA 4	.00		
KA 5	.00		

Table VII-17

ML Estimates of Factor Variances and Covariances for Campus B (Unstandardized)

Coefficients (PHI)	ML Estimates	Standard Error	T-value
Phi 2,1	-.24	.07	-3.20
Phi 3,1	.18	.06	2.98
Phi 4,1	-.08	.06	-1.41
Phi 5,1	-.14	.08	-1.73
Phi 3,2	-.19	.08	-2.39
Phi 4,2	.18	.09	2.05
Phi 5,2	.21	.12	1.80
Phi 4,3	-.10	.07	-1.46
Phi 5,3	-.27	.10	-2.66
Phi 5,4	.45	.13	3.60
Phi 1,1	.34	.08	4.20
Phi 2,2	.60	.14	4.41
Phi 3,3	.47	.11	4.35
Phi 4,4	.39	.15	2.65
Phi 5,5	.92	.26	3.51

Assessment of fit for Campus B:

Goodness of fit index: .829
Root mean square residual: .085

Table VII-18

ML Estimates of the Factor Structures--Campus C (Unstandardized)

Coefficients	ML Estimates	Standard Error	T-value
LAMBDA X			
Lambda 1,1	1.00	.00	.00
Lambda 2,1	.96	.05	18.10
Lambda 3,1	1.08	.06	17.48
Lambda 4,2	1.00	.04	25.32
Lambda 5,2	1.00	.00	.00
Lambda 6,2	.94	.03	34.47
Lambda 7,3	1.05	.06	16.24
Lambda 8,3	1.00	.00	.00
Lambda 9,3	.97	.06	16.14
Lambda 10,4	1.00	.00	.00
Lambda 11,4	.80	.04	19.17
Lambda 12,4	.92	.03	30.40
Lambda 13,5	1.08	.04	28.69
Lambda 14,5	1.03	.04	26.12
Lambda 15,5	1.00	.00	.00
Lambda 16,5	1.03	.05	22.18
THETA DELTA (TD)			
TD 1,1	.43	.09	4.94
TD 2,2	.17	.05	3.60
TD 3,3	.27	.07	4.05
TD 4,4	1.17	.22	5.36
TD 5,5	.15	.07	2.11
TD 6,6	.49	.11	4.66
TD 7,7	.18	.06	3.14
TD 8,8	.50	.10	5.05
TD 9,9	.16	.05	3.27
TD 10,10	.46	.12	3.95
TD 11,11	1.58	.28	5.56
TD 12,12	.59	.13	4.66
TD 13,13	.19	.06	3.01
TD 14,14	.36	.08	4.47
TD 15,15	.71	.14	5.23
TD 16,16	.79	.15	5.27
KAPPA (KA)			
KA 1	1.65	.10	16.16
KA 2	3.45	.11	30.76
KA 3	1.38	.13	10.82
KA 4	3.91	.11	36.65
KA 5	3.11	.15	21.37

Table VII-19

ML Estimates of Factor Variances and Covariances for Campus C (Unstandardized)

Coefficients (PHI)	ML Estimates	Standard Error	T-value
Phi 2,1	-.05	.07	-.71
Phi 3,1	.03	.07	.39
Phi 4,1	-.06	.06	-1.12
Phi 5,1	-.03	.07	-.40
Phi 3,2	-.17	.10	-1.67
Phi 4,2	.14	.08	1.67
Phi 5,2	.31	.11	2.83
Phi 4,3	-.01	.08	-.08
Phi 5,3	-.25	.11	-2.31
Phi 5,4	.20	.09	2.19
Phi 1,1	.31	.07	4.30
Phi 2,2	.71	.15	4.92
Phi 3,3	.73	.15	4.74
Phi 4,4	.33	.11	3.08
Phi 5,5	.80	.16	5.06

Assessment of fit for Campus C:

Goodness of fit index: .850
Root mean square residual: .103

Overall Goodness of Fit across Three Campuses:

Chi-square with 305 df ....347.53 P=.047

Table VII-20

ML Estimates for Mean Structures

1. Unstandardized factor loadings

			Factors		
Variables	Crime	Support	Victim	Group	Conflict
Pdrugs	1.00	.00	.00	.00	.00
Pweapo	.95	.00	.00	.00	.00
Pviole	.75	.00	.00	.00	.00
Pfamup	.00	.87	.00	.00	.00
Pschup	.00	1.00	.00	.00	.00
Pwrkup	.00	.67	.00	.00	.00
Pjewel	.00	.00	1.28	.00	.00
Phurt	.00	.00	1.00	.00	.00
Pphys	.00	.00	1.16	.00	.00
Peffgr	.00	.00	.00	1.00	.00
Pothdo	.00	.00	.00	-.18	.00
Pothsh	.00	.00	.00	.81	.00
Pimpgp	.00	.00	.00	.00	1.06
Pimpcr	.00	.00	.00	.00	1.04
Pimpct	.00	.00	.00	.00	1.00
Pimpjb	.00	.00	.00	.00	.87

2. Unstandardized Error Variances and Intercepts

Variables	Theta Delta	Tau X
Pdrugs	.18	1.31
Pweapo	.16	1.37
Pviole	.34	1.55
Pfamup	1.09	3.59
Pschup	.20	3.78
Pwrkup	.74	3.44
Pjewel	.20	1.43
Phurt	.38	1.40
Pphys	.26	1.36
Peffgr	.27	4.09
Pothdo	1.40	3.23
Pothsh	.53	3.82
Pimpgp	.32	3.53
Pimpcr	.49	3.31
Pimpct	.67	3.40
Pimpjb	.86	3.38

Table VII-20 (Continued)

3. Factor Variance-Covariance Matrix

(Campus B)			Factors		
	Crime	Support	Victim	Group	Conflict
Crime	.32				
Support	-.22	.56			
Victim	.20	-.18	.59		
Group	-.08	.17	-.09	.40	
Conflict	-.13	.18	-.29	.41	.84

(Campus A)			Factors		
	Crime	Support	Victim	Group	Conflict
Crime	.28				
Support	.04	.51			
Victim	.08	-.10	.45		
Group	-.08	.08	-.20	.63	
Conflict	-.02	.21	-.19	.22	.63

(Campus C)			Factors		
	Crime	Support	Victim	Group	Conflict
Crime	.41				
Support	-.06	.76			
Victim	.02	-.16	.53		
Group	-.10	.20	-.01	.60	
Conflict	-.06	.35	-.20	.23	.80

Table VII-20 (Continued)

4. Mean Structure Matrix

		Factor Means			
Campuses Conflict	Crime	Support	Victim	Group	
Campus A	.11	-.25	-.07	-.30	.02
Campus B	.00	.00	.00	.00	.00
Campus C	.28	-.31	.00	-.21	-.17

5. Scaled Mean Structure Matrix[a]

		Factor Means			
Campuses Conflict	Crime	Support	Victim	Group	
Campus A	-.02	-.063	-.047	-.13	.07
Campus B	-.13	.187	.023	.17	.05
Campus C	.15	-.123	.023	-.04	-.12

Note

[a] The scaled factor means have been computed such that the weighted mean (We have set the sample sizes equal across groups, thus the weight here is a unity.) over the groups is zero for each factor.

Table VII-21

Assessment of Fit for the Mean Structures Model

1. Assessment of fit for Campus B

Goodness of fit index: .776
Root mean square residual: .106

2. Assessment of fit for Campus A

Goodness of fit index: .829
Root mean square residual: .091

3. Assessment of fit for Campus C

Goodness of fit index: .833
Root mean square residual: .085

4. Overall Assessment of Goodness of Fit

Chi-square with 359 df ....442.92 P=.002

Chapter VIII: An Assessment of the Social Validity of Cooperative Learning and Conflict Resolution in Alternative High School*

Introduction

Consumer satisfaction is an important factor in the effectiveness of an intervention and plays a critical role in evaluating the overall worth of the program (Lebow, 1982; McMahon & Forehand, 1983; Rossi & Wright, 1984; Wolf, M. M., 1978; Wolf, R. M., 1984). Consumer satisfaction can be considered as social validation of social programs.

This chapter assesses the social validity of the cooperative learning and conflict resolution programs introduced into Alternative High School (AHS). Specifically, it is a systematic exploration of teachers' perceptions of the effectiveness and applicability of cooperative learning and conflict resolution skills for their students and themselves. It also investigates whether the students at AHS rated the programs as beneficial and felt improvement in areas the interventions were hypothesized to affect.

The remainder of this chapter is divided into the following sections: (1) a brief review of reports of consumer satisfaction with cooperative learning and conflict resolution; (2) methods; (3) findings; and (4) discussion.

Review of Literature

Conflict Resolution (CR)

Few studies have assessed school based conflict resolution programs in a systematic fashion (Lam, 1989; Van Slyck & Stern, in press; Wilson-Brewer et al., 1991). A few systematic evaluations have shown positive changes in school climate and students' attitudes toward conflict as a result of conflict resolution training. Studies of peer mediators show that their self-image is enhanced (Araki, 1990; Lam, 1989; Van Slyck & Stern, in press) and that student disputants have been satisfied with the mediation outcomes (Lam, 1989). In addition, several feature articles report the successes of conflict resolution programs in The Fourth R, the newsletter of the National Association for Mediation in Education (see Clark & Mann, 1989; Del Maestro, 1989; Freed, 1990; Keeney, 1989; Kohn, 1990).

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* This chapter was prepared by Nidhi Khattri.

In recent years, educators have sought out or developed conflict resolution and/or dispute mediation programs for their schools due to the increase in violence among students as well as between teachers and students. Promotion of peaceful solutions to conflicts and enhancement of social skills are among the goals of these conflict resolution/mediation programs (Van Slyck & Stern, in press; Wilson-Brewer & Jacklin, 1990).

Several researchers and practitioners, however, call for systematic evaluations, not just anecdotal evidence of these programs. This report is a part of such an evaluation.

Cooperative Learning (CL)

Much more research has been done in the area of cooperative learning than in conflict resolution. Social skills, academic performance, and school climate in relation to cooperative learning have been studied by many researchers and, overall, the results have been positive (Johnson & Johnson, 1989; Slavin, 1980). Studies by Solomon et al. (1991) and Lazarowitz (1991) report that students' reactions to cooperative learning have been quite favorable. Interviews show that these children feel they gain academic and social benefits such as getting help from peers and learning to better understand others from cooperative learning.

Several feature articles describe teachers' experiences with cooperative learning as being interesting and useful for themselves and their students (Clarke, 1990; Ellis, 1985; Graves & Graves, 1991; McElroy, 1989; Moskowitz et al., 1985; Reynolds & Salend, 1989). However, teachers have also noted problems with cooperative learning such as student objections to assigned tasks, peer problems among students (McElroy, 1989), and fatigue doing cooperative learning (Lazarowitz, 1991).

Despite these reports, there is a dearth of systematic research on teachers' evaluations of the effects of cooperative learning on their students after it has been implemented in a particular setting. The present chapter seeks to add to this small store of knowledge by reporting teachers' and students' evaluations of cooperative learning at AHS.

Questions for Social Validity

Several questions were formulated to guide the data analyses to determine the social validity of training in conflict resolution and cooperative learning skills. Separate sets of questions were asked of the data from the teacher surveys and from the student surveys and interviews.

Questions Related to the Teachers

1. Do the teachers participating in and actively using CL positively evaluate the effects of CL on their students regarding: (a) academic achievement; (b) psychological improvement; and (c) peer relationships?

2. Do the teachers participating in and actively using CR positively evaluate the effects of CR regarding: (a) socio-emotional influence on students; (b) applicability of CR in and outside of school; (c) teachers' relationships with students and others; and (d) teachers' ability to handle student discipline?

3. What did the teachers find useful/not useful about the CL/CR training and what suggestions did they have for improving the training programs?

Questions Related to the Students

Interview data (Year One):

1. Do the students (Campuses A & B) find CR lessons useful in the following places: home, school, work, streets?

2. For CL (Campus C): (a) what skills do the students learn that make them work better in groups; and (b) what do the students like/dislike about cooperative learning?

Questionnaire Data (Year Two):

1. Do the students report use of CL techniques (Campuses B & C) and CR techniques (Campus A) in their classes?

2. Do the students find CL/CR techniques useful?

3. Do the students at Campuses B and C: (a) feel cooperative learning helps them learn more? and (b) like cooperative learning?

4. Do the students at Campus A report use of CR skills in different conflict situations?

5. Do the students report improvement in: (a) effective social interaction/groupwork? (b) effective handling of conflicts? (c) lessening of physical fights?

6. Can self-rated improvement be predicted from perceived usefulness of the training and an independently calculated measure of exposure to the interventions?

Method

Teacher Sample

Questionnaires regarding satisfaction with program effectiveness were given to all the teachers at the three campuses of AHS at the end of Year Two. The overall rate of return was 75%, with 36 of the 48 teachers returning the questionnaires.

The data from the trainers show that the teachers who did not return the questionnaires from Campus A were the ones who had not participated in the training. However, at Campus B there was no discernible pattern of non-returns of questionnaires. At Campus C, all the non-returns had some training, although it is unclear how much they were using it in classes.

Student Sample

At the end of Year One, students were randomly picked -- 34 from each of Campuses A and B, and 38 from Campus C -- to be interviewed about the interventions at their campus. At the end of Year Two, questionnaires regarding the intervention and self-rating of improvement were administered to all the students taking the posttest surveys. One hundred and seventy-seven students completed the Intervention Report Survey and 204 completed the Interpersonal

Improvement Questionnaire. This discrepancy in number is due to non-completion of the Intervention Report Survey and screening out of unreliable data.

Teacher Measures

Measures on the use and effects of the interventions consist of questions pertaining to training in and use of CL/CR. Questions pertaining to the effects of and problems with CL/CR are answered on 5-point Likert-type items. The final factor scales were derived by doing a factor analysis on all the variables of interest for data reduction purposes. The Cronbach Alpha for all the scales used are within the acceptable range with the possible exception of "lack of skill/support" for CL, for which it is .579 (Table VIII-17). Some individual items were considered important and kept for analysis purposes without integrating them into the factor scales (Table VIII-18). Teachers were also asked for free responses regarding "usefulness/non-usefulness" of the training and whether they had any suggestions for improving the CL and CR training programs (Tables VIII-5 to VIII-7).

Students

The interview format (for Year One data) was in the form of questions which elicited free responses from the students. For assessing the social validity, questions related to evaluating the usefulness of the interventions and "liking/not liking" of cooperative learning were considered (Tables VIII-8 & VIII-9).

At the end of Year Two, students' reactions to the interventions were assessed through a series of yes/no questions about the use of CL/CR techniques in classes and whether these techniques were useful to them. In addition, the students answered questions about liking CL and learning in CL classes on 5-point Likert-type items. For CR, students answered questions about frequency of use of CR techniques in specific situations on 5-point Likert-type items. The above items formed the Intervention Survey. Students also answered questions about improvement in different social interaction skills and emotional aspects of their lives on five-point Likert-type items. These items constituted the Interpersonal Improvement Survey. Factor analysis was done for data reduction and for forming internally consistent scales (Table VIII-17). The scales are given in Tables VIII-21 through VIII-23.

Results

Teachers

Cooperative learning (CL). Of the 36 respondents, 22 teachers reported being trained in and using cooperative learning (Table VIII-1). The 3 teachers from Campus A who had training in CL also had training in and used CR. These teachers were not trained in CL through this project.

Teachers who actively participated in and used CL in their classes rated CL as being "somewhat effective" (mid-point of the scale) or better for improving their students psychologically, academically, and in their peer relations.(VIII-Table 2). Students' psychological improvement was assessed with such measures as student responsibility, self-esteem, self-confidence, and perspective-taking skills. With regard to peer-relations, the teachers rated the effects of CL on promoting peer relationships and increasing positive social interaction as well as class participation of their students. Finally, the teachers rated the effects of CL on increasing student academic performance. Teachers thought the largest improvement was in the area of peer relations.

Teachers were also asked to evaluate CL on some common problems associated with it. Of the 22 teachers, eleven rated CL as not being problematic with regard to student learning (students not learning as much and good students being held back). Ten rated it as being somewhat of a problem for student learning, and one rated it as being a definite problem. In addition, teachers also rated problems associated with their lack of skill and lack of support in doing CL such as their spending too much time on lesson preparation, their not feeling skillful enough, and their students not liking CL. Ten teachers rated lack of skill/support for CL as not being a problem while 12 rated it as being somewhat of a problem (Table VIII-2A). The three who trained in CL but did not use it in their classes rated CL as being somewhat of a problem for student learning and lack of skill/support for CL as also being somewhat of a problem for them. One indicated that his/her lack of skill was a definite problem in doing the CL format. Thus, lack of support/skill and the perception that CL is non-conducive to learning appear to be associated with non-use of the training. No significant gender differences were observed for any of the above findings.

Conflict Resolution (CR). Overall, 13 teachers reported being trained in and using CR (Table VIII-1). Two reported no training but use of CR. All teachers at Campus B who had training in CR were also trained in CL.

Teachers were asked to rate the usefulness and applicability of CR in the students' everyday lives and its influence on the students' socio-emotional well-being. Responses on applicability of CR in the students' lives (from those who trained in and used CR) show that it is considered quite valuable in school, in family group, at work, and in student disciplinary committees. It is rated moderately valuable in the neighborhood around school (Table VIII-3).

Teachers also assessed the influence of CR on socio-emotional areas such as student confidence, emotional maturity, perspective-taking skills, promoting peer relationships, and in decreasing violence and hostility. They rated CR as having a somewhat effective positive socio-emotional influence on their students (Table VIII-3).

Teachers were asked to indicate the personal value they had received from CR training in areas such as personal relationships in general, relationships with colleagues, and teaching classes and the value of CR training for student discipline. They rated it as being more than moderately valuable in their personal lives and in handling student discipline (Table VIII-3).

Teachers rated the philosophical/psychological problems associated with the use of CR: CR stirring up too much emotion in class, CR not focusing enough on the social causes of conflict, and CR requiring too much psychological expertise of the teacher (Table VIII-4). In addition, teachers rated their own problems with skillfulness in doing CR lessons.

Of the thirteen teachers who trained in and used CR, ten indicated that philosophical/psychological aspects of CR were not a problem for them, while three others said that it was somewhat of a problem. Five indicated that their own skillfulness with CR was not a problem for them, while seven indicated that it was somewhat of a problem and one said that it was definitely a problem. The two who were trained in CR but did not use it in their classes indicated that the difficulties with CR named above were somewhat of a problem for them. One teacher who did not use CR indicated that it focuses too little on the social causes of the students' conflicts. No significant gender differences were observed for any of the CR findings stated above.

Training. Nine out of twelve teachers from Campus A responded to questions about the usefulness/non-usefulness of the conflict resolution training (Table VIII-5). The following aspects of CR were considered useful: student mediation; specific techniques of CR such as "active listening" and "perceptions"; awareness of CR and its use in exploring students' feelings and problems. Teachers also mentioned liking the trainer and her training approach with their students. However, teachers indicated that some of the "jargon" was not useful to them, and one felt that some of the CR examples were inappropriate to the school setting. Most of the suggestions for improving CR training centered around having more intensive training and mediation training for the students. One teacher mentioned wanting lessons more specific to issues such as racial violence, street culture, and society's morality.

Thirteen out of fourteen teachers from Campus B responded to the questions about CL training (Table VIII-6). In general, the teachers' responses show that they found the workshops to be quite useful. There were resounding endorsements of the trainer; four teachers mentioned they liked her and thanked ICCCR for the trainer. In response to a relevant question, only two people mentioned something that they thought was not useful; one mentioned "theory" and another "lecture format." Teachers suggested continuing the training in CL, and they also made specific suggestions for improvement such as lesson planning and videotaping the classes.

Eight out of ten teachers from Campus C responded to questions about the CL training (Table VIII-7). Aspects of the CL training considered useful were: group make-up techniques; workshops, in general; one teacher mentioned in-class observations by the trainer. One teacher did not find the workshops useful, while another didn't like "studying the book" and workshop scheduling. One teacher mentioned that working in groups tends to distract the students and that her/his students learned better when working one-on-one with her/him. The teachers had three types of suggestions for training improvement: more materials on CL; more convenient scheduling of the workshops so that more staff could be involved; and more in-class observations and post-class conferences for discussion and future planning.

Students: Interview Data (Year One)

The data considered here are broad and general categories which were mentioned by many students as well as those categories which appeared important to the researchers for the evaluation of the interventions. The students were allowed free responses and they generally gave one or two responses to each question.

Conflict resolution (Campuses A & B). All the students interviewed mentioned that they had been in conflict resolution classes. A majority said that they found the CR lessons useful in most situations: home, school, and work (Table VIII-8). Fewer students mentioned CR as being useful in the "streets." For home, some of the reasons given were that the students viewed conflicts differently, could control themselves with family members, and were better able to communicate with and understand their families. Of the students who mentioned not finding CR useful at home, some said that they already knew how to handle themselves. Students said that CR was useful in school because they learned to see others' points of view, they began to discuss potential points of conflict more often, and because CR helps with friendships. At work, three of the salient reasons given for the usefulness of CR were that the students improved in explaining problems to or dealing with the boss, they experienced better relationships at work, and they found that CR helped them deal with other workers and clients. The students who said that CR was not useful at work mentioned not having conflicts or problems at work, or that they already knew how to handle themselves. The reasons given for CR being useful in the streets were greater self-control, control of anger, and learning to avoid trouble. However, those who said CR is not useful in the streets mentioned that they don't hang out, have no problems, or that people on the street are different and try to "outdo" others.

Cooperative Learning (Campus C). All the students interviewed at Campus C had been in one or more cooperative learning classes. The students were asked to think about the class in which they worked in cooperative groups most often and were asked what they had learned that made them work better in groups. Four communications skills were mentioned most often: listening to each other; offering to explain; asking for help; and criticizing ideas, not people (Table VIII-9).

Students were also asked what they liked about this class (Table VIII-9). They said that they learned more, they liked the social contact, CL was "more fun," they liked helping and/or teaching other students, and they had more of a chance to participate in class. Three students mentioned not liking CL at all. These same students said that they felt they were held back in learning or had to do all the work. Others also gave similar reasons for not liking CL.

Students: Questionnaire Data (Year Two)

A majority of the students (75% or more) reported the use of one or more elements of CR (Campus A) and CL (Campuses B and C) in their classes (Table VIII-10). In addition, a majority found these to be useful (70% or more). Correlation between reported use in class and usefulness of the CL/CR elements is .74 or more. No ethnic and gender differences were observed at any of the campuses for the results given above.

Cooperative learning only (Campuses B & C). Sixty four percent of the students from Campus B and 49 percent from Campus C said they learned more in CL groups than in their usual mode. Four percent from Campus B and 12 percent from Campus C said that they learned less than usual in CL groups (Table VIII-11). In addition, 54 percent or more liked cooperative learning at Campuses B and C, and 24 percent or less disliked it (Table VIII-11). No significant ethnic or gender differences were observed in liking of and learning in cooperative learning groups at either campus.

However, campus differences are significant on the students' evaluation of learning in groups. Although a majority of the students at each Campus (B and C) felt they learned more than usual in groups, the mean for Campus B was significantly higher than the mean for Campus C (Table VIII-11).

Conflict resolution only (Campus A). Students at Campus A were asked whether they used what they had learned about conflict resolution in different situations. Use of CR by specific situations shows that a larger percent (35.6%) rated using CR frequently at home than anywhere else, especially at work (20.5 %) (Table VIII-12).

Correlations between self-reported use of CR in specific situations and self-reported improvement in handling conflicts in those areas show that use in any one area is significantly associated with improvement in handling conflicts in most other areas except for "at job" (Table VIII-12). No significant ethnic or gender differences were obtained for use of CR in different situations.

Interpersonal improvement across campuses. Self-ratings on interpersonal improvement were made by all students who took the posttest surveys. The means on feeling improvement in social interaction/working together in groups, improvement in handling conflicts with different people, and in lessening of physical fights are all above the mid-point of the scale, indicating general improvement (Table VIII-13). One-way Anovas showed that the three campuses did not differ significantly from each other on the ratings on effective interaction/groupwork and improvement in handling of conflicts. However, Campus A differed significantly from Campus C on reports of lessening of physical fights. This indicates that Campus A students have felt that they became less involved in physical fights during the past year while the students at Campus C do not feel the same level of improvement with regard to physical fighting (Table VIII-13).

Multiple regression results. Standard multiple regression analyses were performed to predict students' interpersonal improvement from the students' reports of usefulness of CL at Campuses B and C, reported use of CR at Campus A, and an independent measure of exposure to the interventions. The two predictors were considered important as they are both indicators of exposure to the training: one independent and one subjective.

At Campus A, CR training exposure and use of CR by students are significant predictors of effective interaction/groupwork skills and effective handling of conflict, but not of lessening of physical fights (Table VIII-14). At Campus B, all three interpersonal improvement items are significantly predicted from independent exposure to CL and CL usefulness (Table VIII-15). At Campus C, effective interaction/groupwork skills is negatively related to training exposures but positively related to CL usefulness, while lessening of physical fights is significantly predicted only from CL usefulness (Table VIII-16). However, effective handling of conflicts is not predicted from exposure to the training.

Discussion

The discussion focuses on the major findings from the teachers and the students, with an integration of the results from the two groups.

Overall, the results are encouraging with respect to the social validity of these interventions. The teachers gave moderate endorsements of the conflict resolution and cooperative learning interventions at Alternative High School for their students and themselves. The students found these interventions to be useful and applicable to their personal situations. Most teachers were trained in the interventions introduced at their campus and a majority of the students reported the use of those interventions in their classes.

The teachers at Campuses B and C gave moderately favorable evaluations of the effects of CL on their students regarding peer relationships, psychological improvement, and increasing academic achievement. A majority of the students from Campuses B and C also said that they liked cooperative learning and indicated that they learned more in the CL classes. However, Campus B was higher in its ratings of the liking for and learning in CL classes than Campus C. This result is concordant with our expectation that the teachers at Campus B would be better at implementing CL because they also had training in CR. Interestingly, Campus B teachers who were trained in both interventions tended to give more favorable ratings to these interventions than the teachers from the other two campuses (Table VIII-20). This may be because CL and CR are mutually facilitative: the combination is presumably more effective than CL or CR alone. However, a much larger sample size is needed to definitively evaluate this hypothesis. There are, of course, other possible explanations for these trends in the data, namely, differences between the teachers and/or the students at the two campuses, and differences in the training approaches.

The teachers who were trained in CR also evaluated the applicability of CR quite favorably for their students in school, at work, and in family groups but felt that CR is only moderately valuable for the neighborhood around the school campus. This is not surprising as the neighborhoods around these campuses are not considered safe; hence, conflict resolution skills may not be considered applicable to street violence. The students similarly felt that CR is least helpful in the "streets" but is useful at home, at school, and at work. Conflict resolution was judged by the teachers to be only somewhat effective in having a positive socio-emotional influence on their students. For themselves, teachers found that CR was helpful in dealing with student discipline, but CR was deemed only somewhat valuable in their personal lives. This feeling may be due to the fact that the trainer was training the students directly and the teachers were not being trained as intensely as the students (Mitchell, 1991).

The pattern of interview and questionnaire results from the students about the value of CR is interesting. It appears that the benefits of CR relate not only to interpersonal behavior in using CR skills, but also enhance thinking about how to avoid provoking harmful situations as well as managing conflicts when they arise. This cognitive component is considered important in anger management, in developing empathy and good social skills, and ultimately in violence prevention (Coulter, 1990; Prothrow-Stith, 1987; Urbain & Kendall, 1980). Thus, the implication for CR training is that cognitive and behavioral components have to be taken into consideration.

As a result of the CR intervention, a number of the students desired mediation training and have been trained by the ICCCR trainer. This program has been institutionalized for resolving disputes amongst the school members at Campus A. The Campus B students heard about the mediation training and have asked that a mediation group be formed at their campus (Campus B coordinator, personal communication).

Students from all three sites felt that they had become better in their handling of interpersonal relations. However, Campus A students indicated the greatest decrease in physical fights. These results are not surprising because the principle underlying the two interventions is the same: effective interpersonal interaction which results in cooperation and constructive resolution to conflicts (Deutsch, 1973; 1985). However, physical fights are an extreme version of non-cooperation and destructive conflict resolution. This more violent type of conflict was discussed much more explicitly at Campus A through the violence prevention module of the CR intervention curriculum during Years One and Two, and at Campus B during Year One, but not at Campus C. Hence, the violence prevention module of the CR intervention at Campus A might have helped the students in learning to avoid physical conflicts.

Exposure to the interventions is linked to some interpersonal improvement variables but not to others, depending on the campus. At Campus A, lessening of physical fights is not predicted by exposure to the intervention. This lack of correlation appears to be due to the fact that all students in this analysis were exposed to conflict resolution training, and regardless of the amount of exposure, they feel they have improved. The violence prevention module of CR might be helpful in avoiding physical fights. At Campus B, all of the interpersonal improvement items are significantly associated with exposure to the intervention.

Curiously enough, at Campus C independent exposure to the intervention is negatively associated with improvement in groupwork skills. As previously mentioned, one explanation for this finding is that the teachers at Campus C were not trained in conflict resolution skills. Thus, implementing the CL techniques might have been more difficult for these teachers. In fact, the independent exposure measure only captures the amount of exposure to the intervention but not the quality of implementation of CL/CR.

Although these regression findings are correlational in nature, they strongly suggest causal links between the intervention and self-rated improvement. These analyses were done within a theoretical framework (Deutsch, 1973; 1985) which proposed that interpersonal improvement would be enhanced due to the interventions.

It is important to consider these findings in the context of the feedback on training obtained from the teachers. For CL, the teachers from Campus B seemed to be more satisfied with their trainer's approach than the teachers from Campus C. The teachers from Campus A were happy with their CR trainer, although they frequently utilized the trainer to directly train the students. However, teachers from all campuses wanted more training even after the project ended. These data indicate two things: first, that the teachers regard these interventions as being useful is reflected in their desire for more training; and second, that they have not fully absorbed the skills themselves to adequately implement CR and CL and, therefore, to evaluate the full effects of the intervention on their students. Thus, another limitation of this report is that the teachers observed the effects of the interventions on their students while they were still in the process of learning the theory and use of conflict resolution and cooperative learning. Hence, a lengthier longitudinal study is desirable for a more rigorous evaluation of the social validity of these interventions.

Lastly, due to the small sample sizes of the teachers and the students, gender and ethnic differences could not be fully evaluated.

In conclusion, social validity is the valuation of a program by its recipients. The students and teachers at AHS liked these programs and found them to be useful and applicable to their situations as indicated by the qualitative and quantitative data.

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Table VIII-1

REPORTS OF TRAINING IN CL/CR FROM TEACHERS
YEAR 2

COOPERATIVE LEARNING (CL)

	TRAINING N=25		NO TRAINING N=10		TOTAL
	USED	NOT USED	USED	NOT USED	
CAMPUS A	3	1	6	2	12
CAMPUS B	9	2	2	0	13
CAMPUS C	10	0	0	0	10
TOTAL	22	3	8	2	35

RESPONSE FOR PARTICIPATION IN COOPERATIVE LEARNING WAS MISSING FROM ONE TEACHER FROM CAMPUS B

NOTE: TEACHERS FROM CAMPUS A WHO HAD TRAINING IN CL AND USED IT ALSO HAD TRAINING IN CR AND USED IT IN THEIR CLASSES

CONFLICT RESOLUTION (CR)

	TRAINING N=15		NO TRAINING N=21		TOTAL
	USED	NOT USED	USED	NOT USED	
CAMPUS A	8	0	0	4	12
CAMPUS B	5	2	2	5	14
CAMPUS C	0	0	0	10	10
TOTAL	13	2	2	19	36

NOTE: TEACHERS FROM CAMPUS B WHO HAD TRAINING IN CR AND USED IT ALSO HAD TRAINING IN CL AND USED IT IN THEIR CLASSES

Table VIII-2

COOPERATIVE LEARNING

COOPERATIVE LEARNING EFFECTIVENESS FOR THE STUDENTS AS RATED BY TEACHERS
(N=21)

Scale: 1=Not effective; 2=A little effective;
3=Somewhat effective; 4=Generally effective
5=Very much effective

	MEAN	SD	CI(95%)
STUDENT PSYCHOLOGICAL IMPROVEMENT	3.57	.643	3.29 - 3.85
POSITIVE PEER RELATIONS	4.10	.485	3.89 - 4.31
INCREASING ACADEMIC PERFORMANCE	3.48	.814	3.13 - 3.83

Table VIII-2A

NUMBER OF TEACHERS REPORTING EXPERIENCE OF PROBLEMS ASSOCIATED WITH COOPERATIVE LEARNING

	NOT A PROBLEM	SOMEWHAT OF APROBLEM	DEFINITELY APROBLEM
NON-CONDUCIVE TO LEARNING	11	10	1
LACK OF SKILLS/SUPPORT	10	12	0

Table VIII-3

CONFLICT RESOLUTION

APPLICABILITY OF CONFLICT RESOLUTION IN THE EVERYDAY LIVES OF THE STUDENTS AS RATED BY TEACHERS
(N=13)

Scale: 1=Not valuable; 2=Little value;
3=Moderately valuable; 4=Quite valuable;
5=Very valuable

	MEAN	SD	CI(95%)
IN SCHOOL	4.23	.927	3.97 - 4.49
AT WORK	3.77	1.170	3.45 - 4.09
IN FAMILY GROUP	4.00	1.000	3.72 - 4.28
IN STUDENT DISCIPLINARY COMMITTEES	3.92	.900	3.67 - 4.17
AROUND SCHOOL NEIGHBORHOOD	3.08	1.040	2.79 - 3.37

CR POSITIVE SOCIO-EMOTIONAL INFLUENCE ON STUDENTS AS RATED BY TEACHERS
(N=13)

Scale: 1=Not effective/or valuable; 2=A little effective;
3=Somewhat effective; 4=Generally effective
5=Very much effective

	MEAN	SD	CI(95%)
POSITIVE SOCIO-EMOTIONAL INFLUENCE ON STUDENTS	3.10	.899	2.61 - 3.59
PERSONAL VALUE OF CR (FOR TEACHERS)	3.17	1.03	2.61 - 3.73
HANDLING STUDENT DISCIPLINE (FOR TEACHERS)	3.69	1.18	3.05 - 4.33

Table VIII-4

CONFLICT RESOLUTION

NUMBERS OF TEACHERS REPORTING EXPERIENCE OF PROBLEMS ASSOCIATED WITH TEACHING CONFLICT RESOLUTION SKILLS

	NOT A PROBLEM	SOMEWHAT OF A PROBLEM	DEFINITELY A PROBLEM
PHILOSOPHICAL/ PSYCHOLOGICAL	10	3	0
FELT UNSKILLED	5	7	1

Table VIII-5

CAMPUS A TEACHERS' REACTIONS TO CR TRAINING

PLEASE CONSIDER ALL TRAINING WORKSHOPS AND TIME SPENT WITH TRAINING LEADER IN ANSWERING THE FOLLOWING QUESTIONS

Q.1 What aspect of the training in cooperative learning and/or conflict resolution have you found useful?

	Number responding
Specific aspects of CR, such as "Active listening", "perceptions"	N=4
Awareness of CR and its use for exploring students' problems and feelings	N=3
Student Mediation	N=2
Liked the trainer and her approach with the students	N=4

Q.2 What aspects of training were not useful to you?

Some of the CR jargon, such as "chips/chops" and "A.E.I.O.U."	N=3
Some CR examples inappropriate to school settings	N=1
Staff meetings, workshops last year	N=1

Q. 3 Please use the following space to list any suggestions for improving our training programs (e.g. content areas, training and workshop formats, scheduling, staff support, etc.)

More training, intensive training, student mediation training	N=4
Lessons more specific to the issues students deal with such as racial violence, street culture, society's morality	N=1

Table VIII-6

CAMPUS B TEACHERS' REACTIONS TO CL TRAINING

PLEASE CONSIDER ALL TRAINING WORKSHOPS AND TIME SPENT WITH TRAINING LEADER IN ANSWERING THE FOLLOWING QUESTIONS

Q.1 What aspect of the training in cooperative learning and/or conflict resolution have you found useful?	Number responding
Good workshops; the trainer was very good "(she) is great"	N=6
Sharing information, own experiences with trainer, others	N=2
Have not participated in CL training	N=3

Q.2 What aspects of training were not useful to you?	
"Lecture format"	N=1
"Theory"	N=1
Everything was useful	N=3

Q. 3 Please use the following space to list any suggestions for improving our training programs (e.g. content areas, training and workshop formats, scheduling, staff support, etc.)	
More training	N=3
More demonstration lessons Family group lessons More concrete lesson plans	N=3
Videotaping class sessions, school trips	N=2

Table VIII-7

CAMPUS C TEACHERS' REACTIONS TO CL TRAINING

PLEASE CONSIDER ALL TRAINING WORKSHOPS AND TIME SPENT WITH TRAINING LEADER IN ANSWERING THE FOLLOWING QUESTIONS

Q.1 What aspect of the training in cooperative learning and/or conflict resolution have you found useful?

	Number responding
Group make-up techniques	N=2
In general, workshops with the trainer	N=2
In-class observations by the trainer	N=1

Q.2 What aspects of training were not useful to you?

Workshops	N=1
"Studying the book" and scheduling	N=1
Students distractable in groups. They tendto learn better one on one with the teacher	N=1

Q. 3 Please use the following space to list any suggestions for improving our training programs (e.g. content areas, training and workshop formats, scheduling, staff support, etc.)

Need more materials specific to CL	N=2
More convenient scheduling of workshops when more staff can be involved	N=1
More in-class observations; post-classroom conferences	N=1

Table VIII-8

INTERVIEW DATA, YEAR ONE

CONFLICT RESOLUTION AT CAMPUS A
(N=34)

Q. Overall, did you find the lessons to be useful in your everyday life at ...

	Yes	No	No response
HOME	74% (n=25)	26% (n=9)	________
SCHOOL	71% (n=24)	18% (n=6)	11% (n=4)
ON THE JOB (n=26)	54% (n=14)	42% (n=11)	4% (n=1)
IN THE STREET	62% (n=21)	24% (n=8)	14% (n=5)

CONFLICT RESOLUTION AT CAMPUS B
(N=34)

Q. Overall, did you find the lessons to be useful in your everyday life at ...

	Yes	No	No response
HOME	71% (n=24)	29% (n=10)	__________
SCHOOL	65% (n=22)	29% (n=10)	6% (n=2)
ON THE JOB (n=26)	50% (n=13)	42% (n=11)	8% (n=2)
IN THE STREET	29% (n=10)	59% (n=20)	12% (n=4)

Table VIII-9

INTERVEIW DATA, YEAR ONE

COOPERATIVE LEARNING AT CAMPUS C
(N=38)

Q. What kinds of things have you learned to do this year that make you work better with other people?

	Percent responding
Listening to each other	42% (n=16)
Offering to explain	37% (n=14)
Asking for help	32% (n=12)
Criticizing ideas, not people	26% (n=10)

Q. What kinds of things do/did you like about it (CL)?

	Percent responding
Learned more	45% (n=17)
Liked the social contact	45% (n=17)
More fun	37% (n=14)
Liked helping/teaching other students	30% (n=11)
Had more chance to participate	26% (n=10)
Do not like CL at all	8% (n=3)

Q. What things did you dislike about it (CL)?

	Percent responding
One person had to do all the work	30% (n=11)
Others did not do the work	13% (n=5)
Covered less ground	13% (n=5)

Table VIII-10

PERCENTAGES FOR THE NUMBER OF CR/CL TOPICS MENTIONED AS DISCUSSED IN CLASS AND CONSIDERED USEFUL BY STUDENTS

Campus A (CR)
(N=49)

Number of Topics	None	1 to 5	6 to 10
Discussed (N=41)	2.4% (1)	24.4% (10)	73.2% (30)
Useful (N=38)	26.3% (10)	23.7% (9)	50.0% (19)

Pearson Correlation between Discussed & Useful=.749**

Campus B (CL)
(N=53)

Number of Topics	None	1 to 4	5 to 8
Used (N=42)	2.4% (1)	21.4% (9)	76.2% (32)
Useful (N=40)	10.0% (4)	32.5% (13)	57.5% (23)

Pearson Correlation between Used & Useful=.805**

Campus C (CL)
(N=75)

Number of Topics	None	1 to 4	5 to 8
Used (N=65)	4.6% (3)	26.3% (17)	69.2% (45)
Useful (N=57)	29.8% (17)	22.8% (13)	47.4% (27)

Pearson Correlation between Used & Useful=.778**

* $p<.05$; ** $p<.01$

Table VIII-11

COOPERATIVE LEARNING

Percentages and Numbers of Students reponding to:

Q. When you were learning together in groups, did you learn more or less than usual?

	LESS	SAME	MORE
CAMPUS B mean=3.90	4.0% (N=2)	32.0% (N=16)	64.0% (N=32)
CAMPUS C mean=3.44	12.3% (N=9)	38.4% (N=28)	49.3% (N=36)

Percentages and Numbers of Students responding to:

Q. How did you like working together in groups where you have to work together cooperatively in order to do class assignments?

	DISLIKED IT	DIDN'T LIKE OR DISLIKE IT	LIKED IT
CAMPUS B mean=3.98	4.4% (N=2)	22.2% (N=10)	73.3% (N=33)
CAMPUS C mean=3.44	24.2% (N=16)	21.2% (N=14)	54.5% (N=36)

CAMPUS COMPARISON

	CAMPUS B	CAMPUS C	SIG
LEARNED MORE	3.90	3.44	t(121)=2.71**
LIKED CL	3.98	3.24	variances sig dif.

Table VIII-12

CONFLICT RESOLUTION

PERCENTAGES AND NUMBERS OF STUDENTS REPORTING USING CR TECHNIQUES IN VARIOUS SITUATIONS AT CAMPUS A.

	Rarely	Occasionally	Frequently
At Home (N=45)	40.1% (18)	24.4% (11)	35.6% (16)
At Work (N=44)	53.3% (23)	27.3% (12)	20.5% (9)
In School (N=45)	44.4% (20)	22.2% (10)	33.3% (15)
With Friends (N=43)	41.9% (18)	27.9% (12)	30.2% (13)

CORRELATIONS BETWEEN USE OF CR IN SPECIFIC SITUATIONS AND SELF-REPORTED IMPROVEMENT IN THOSE AREAS FROM CAMPUS A (N=30)

Improvement in Handling Conflicts with	Friends/Peers	Family	Other Employees	At Job
How Often Have You Used CR?				
With Friends/Peers	.418*	.569**	.481*	.191
At Home	.307	.498**	.390*	.205
At Work/Job	.538**	.594**	.436*	.300
At School	.649**	.732**	.591**	.322

* p<.05 ** p<.01

Table VIII-13

MEANS ON INTERPERSONAL IMPROVEMENT ITEMS FOR ALL THREE CAMPUSES

Effective Interaction/Groupwork

Scale: From 1 to 5. HI=Better groupwork/interaction

Campus	Mean	N	Sd	CI(95%)
Campus A	3.54	56	.772	3.34 - 3.74
Campus B	3.60	65	.792	3.41 - 3.79
Campus C	3.54	80	.700	3.39 - 3.69

F(2,200)=.173, N.S.

Effective Handling of Conflicts

Scale: 1=No improvement; 2=Very little improvement;
3=Some improvement; 4=Much improvement;
5=Great improvement

Campus	Mean	N	Sd	CI(95%)
Campus A	3.33	55	1.114	3.03 - 3.63
Campus B	3.27	62	1.093	2.99 - 3.55
Campus C	3.27	80	1.132	3.13 - 3.44

F(2,194)=.050, N.S.

Lessening of Physical Fights

Scale: 1=Strongly Disagree; 2=Disagree; 3=Can't Decide;
4=Agree; 5=Strongly Agree

HI=Less physical fights

Campus	Mean	N	Sd	CI(95%)
Campus A	4.00	56	1.236	3.67 - 4.33
Campus B	3.69	64	1.344	3.35 - 4.03
Campus C	3.45	78	1.251	3.16 - 3.86

F(2,195)=3.03, $p=.051$

Contrast between Campus A and Campus C is significant, t(132)=2.53, $P<.05$. Constrasts between Campus B and C, and between Campus A and B are not significant.

Table VIII-14

CAMPUS A MULTIPLE REGRESSION RESULTS FOR PREDICTING INTERPERSONAL IMPROVEMENT ITEMS
(Conflict resolution)

(N=28)

Dependent Variable: Effective Interaction/Groupwork

Independent Variables	Beta	Sig	
USE OF CR BY STUDENTS	.373	.034	OVERALL F: 6.06 SIG OF F : .007 OVERALL R2: .326
CR TRAINING EXPOSURE	.373	.034	ADJ R2 : .272 MULTIPLE R: .572

Dependent Variable: Effective Handling of Conflicts

Independent Variables	Beta	Sig	
USE OF CR BY STUDENTS	.553	.003	OVERALL F: 5.98 SIG OF F : .008 OVERALL R2: .324
CR TRAINING EXPOSURE	.071	.676	ADJ R2 : .270 MULTIPLE R: .569

Dependent Variable: Lessening of Physical Fights

Independent Variables	Beta	Sig	
USE OF CR BY STUDENTS	.199	.190	OVERALL F: .325 SIG OF F : .275 OVERALL R2: .106
CR TRAINING EXPOSURE	.199	.463	ADJ R2 : .028 MULTIPLE R: .326

Table VIII-15

CAMPUS B MULTIPLE REGRESSION RESULTS FOR PREDICTING INTERPERSONAL IMPROVEMENT ITEMS (Cooperative Learning and Conflict Resolution)

(N=37)

Dependent Variable: Effective Interaction/Groupwork

Independent Variables	Beta	Sig
CL USEFUL	.268	.095
CL TRAINING EXPOSURE	.336	.038

OVERALL F: 5.27
SIG OF F : .01
OVERALL R2: .227
ADJ R2 : .192
MULTIPLE R: .487

Dependent Variable: Effective Handling of Conflicts

Independent Variables	Beta	Sig
CL USEFUL	-.244	.123
CL TRAINING EXPOSURE	.530	.050

OVERALL F: 6.16
SIG OF F : .005
OVERALL R2: .266
ADJ R2 : .223
MULTIPLE R: .516

Dependent Variable: Lessening of Physical Fights

Independent Variables	Beta	Sig
CL USEFUL	-.087	.647
CL TRAINING EXPOSURE	.534	.008

OVERALL F: 4.36
SIG OF F : .02
OVERALL R2: .259
ADJ R2 : .199
MULTIPLE R: .509

Table VIII-16

CAMPUS C MULTIPLE REGRESSION RESULTS FOR PREDICTING INTERPERSONAL IMPROVEMENT ITEMS (Cooperative Learning)

(N=37)

Dependent Variable: Effective Interaction/Groupwork

Independent Variables	Beta	Sig
CL USEFUL	.431	.001
CL TRAINING EXPOSURE	-.303	.017

OVERALL F: 9.14
SIG OF F : .001
OVERALL R2: .276
ADJ R2 : .246
MULTIPLE R: .525

Dependent Variable: Effective Handling of Conflicts

Independent Variables	Beta	Sig
CL USEFUL	.276	.052
CL TRAINING EXPOSURE	.055	.691

OVERALL F: 2.08
SIG OF F : .136
OVERALL R2: .080
ADJ R2 : .041
MULTIPLE R: .282

Dependent Variable: Lessening of Physical fights

Independent Variables	Beta	Sig
CL USEFUL	.583	.001
CL TRAINING EXPOSURE	-.127	.415

OVERALL F: 8.56
SIG OF F : .001
OVERALL R2: .388
ADJ R2 : .343
MULTIPLE R: .623

Table VIII-17

RELIABILITIES OF THE MULTIPLE ITEM SCALES

TEACHER DATA

COOPERATIVE LEARNING	ALPHA	N
Student Psychological Improvement	.802	33
Positive Peer Relations	.640	33
Non Conducive to Learning	.864	30
Lack of Skill/Support	.579	30

CONFLICT RESOLUTION	ALPHA	N
Positive Socio-Emotional Influence	.964	30
Applicability of CR	.953	29
Personal Value of CR	.934	32
Disruptive/No Support	.838	29

STUDENT DATA

	ALPHA	N
Effective Groupwork/Interaction	.755	188
Effective Handling of Conflicts	.865	156

Table VIII-18

SCALES FOR EFFECTS OF COOPERATIVE LEARNING

1=NOT EFFECTIVE; 2=A LITTLE EFFECTIVE; 3=SOMEWHAT EFFECTIVE; 4=GENERALLY EFFECTIVE; 5=VERY MUCH EFFECTIVE

Many educators feel that cooperative learning has numerous student benefits and effects. Please read the following statements and rate the effects of cooperative learning for your students in the following areas.

STUDENT PSYCHOLOGICAL IMPROVEMENT

ITEM	FACTOR LOADING
Increasing student responsibility	.75447
Developing student confidence	.72132
Developing perspective-taking skills	.66384
Increasing student self-esteem	.58327

ALPHA=.802 N=33

POSITIVE PEER RELATIONS

ITEM	FACTOR LOADING
Promoting positive peer relationships	.83426
Promoting positive social interaction	.68667
Increasing class participation	.68278

ALPHA=.640 N=33

Table VIII-18 (continued)

PROBLEMS WITH CL

Please think of your own teaching practices. What problems or negative effects are associated with the use of cooperative learning

1=NOT A PROBLEM; 2=A BIT OF A PROBLEM;
3=SOMEWHAT OF A PROBLEM; 4=A DEFINITE PROBLEM;
5=VERY MUCH A PROBLEM

NON CONDUCIVE TO LEARNING

ITEM	FACTOR LOADING
Students did not learn as much	.90435
Good students were held back	.89953
It wastes time	.81730

ALPHA=.864 N=30

LACK OF SKILL/SUPPORT

ITEM	FACTOR LOADING
Spend too much time with lesson preparation	.74847
Students did not like it	.68817
No support to use CL	.68302
Did not feel skillful	.62822

ALPHA=.579 N=30

Table VIII-19

SCALES FOR EFFECTS OF CONFLICT RESOLUTION

Many educators feel that conflict resolution training has numnerous student benefits and effects. Please read the following statements and rate the effects of conflict resolution training for your students in the following areas.

1=NOT EFFECTIVE 2=A LITTLE EFFECTIVE 3=SOMEWHAT EFFECTIVE
4=GENERALLY EFFECTIVE 5=VERY MUCH EFFECTIVE

POSITIVE SOCIO-EMOTIONAL INFLUENCE

ITEM	FACTOR LOADING
Positive student/teacher interaction	.91858
Increasing student self-esteem	.91276
Promoting positive social interaction	.90818
Developing student confidence	.89464
Decreasing student violence	.87806
Promo constructive conflict resolution	.86648
Promo positive peer relationships	.85836
Developing emotional maturity	.85410
Developing perspective-taking skills	.77109

ALPHA=.964 N=30

PERSONAL VALUE OF CR

Please rate the usefulness and applicability of the conflict resolution training you have received in your own experience.

1=NOT VALUABLE 2=LITTLE VALUE 3=MODERATELY VALUABLE
4=QUITE VALUABLE 5=VERY VALUABLE

ITEM	FACTOR LOADING
Relationship with students	.92581
Teaching "family group"	.90952
Dealing with student dicipline	.88276
Relationship with colleagues	.87168
Teaching classes (not CR)	.84970
Personal relationships	.79156

ALPHA=.934 N=32

Table VIII-19 (continued)

PROBLEMS WITH CR

Please think of your own teaching practices. What problems or negative effects are associated with the use of conflict resolution

1=NOT A PROBLEM; 2=A BIT OF A PROBLEM;
3=SOMEWHAT OF A PROBLEM; 4=A DEFINITE PROBLEM;
5=VERY MUCH A PROBLEM

PHILOSOPHICAL/PSYCHOLOGICAL

ITEM	FACTOR LOADING
Focuses too little on social causes	.91637
Stirs up too much emotion	.78933
No support to teach CR	.75699
Requires too much psychological expertise of the teacher	.67826

ALPHA=.838 N=29

Table VIII-20

CAMPUS COMPARISONS ON TEACHER RATINGS

CAMPUS DIFFERENCES ON CR RATINGS

EFFECTS ON STUDENTS

	Campus A (n=8)	Campus B (n=5)	
Positive Socio-Emotional Influence	2.79(.779)	3.60(.925)	t(11)=-1.71, p=.12
Conflict Resolution Applicability	3.39(.915)	4.05(.775)	t(11)=-1.34, p=.21
CR Value in School	4.00(1.07)	4.60(.548)	t(11)=-1.15, p=.27

Bonferroni Alpha=.016

EFFECTS ON SELF

	Campus A (n=8)	Campus B (n=5)	
Personal Value	2.63(.959)	3.76(.792)	t(11)=-2.21, p=.05
Handling Student Discipline	3.50(1.41)	4.00(.707)	t(11)=-.73, p=.48

Bonferroni Alpha=.025

CAMPUS DIFFERENCES ON CL RATINGS

	Campus C (n=9)	Campus B (n=9)	
Student Psychological Improvement	3.64(.849)	3.61(.397)	Variances sig dif
Positive Peer Relations	4.07(.494)	4.15(.475)	t(16)=-.32, p=.75
Increasing Academic Performance	3.22(.972)	3.89(.333)	Variance sig dif

Bonferroni Alpha=.016

Table VIII-21

STUDENT DATA

EFFECTIVE SOCIAL INTERACTION/GROUPWORK

Q. How strongly do you agree with the following statements.

1=STRONGLY DISAGREE; 2=DISAGREE; 3=CAN'T DECIDE;
4=AGREE; 5=STRONGLY AGREE

ITEMS

During the past school year I have learned to work more effectively in groups
Improvement in working with others in groups
I have learned to put myself in others' shoes when I disagree with someone
When I am in an argument I summarize their point of view so they will know that I understand their side
I have learned to handle conflicts and arguments more productively this past year.

ALPHA=.755 N=188

HANDLE CONFLICTS EFFECTIVELY

Q. Please think of the way you handle arguments (conflicts), and about how you get along and work with others in groups. Please rate your improvement in the following areas:

1=NO IMPROVEMENT; 2=VERY LITTLE IMPROVEMENT;
3=SOME IMPROVEMENT; 4=MUCH IMPROVEMENT;
5=GREAT IMPROVEMENT

ITEMS

Handling conflicts or arguments with friends or peers
Handling conflicts/arguments with my family
Working with other employees on the job
Handling conflicts/arguments on the job

ALPHA=.865 N=156

Table VIII-21 (continued)

LESSENING OF PHYSICAL FIGHTS

1=STRONGLY AGREE; 2=AGREE; 3=CAN'T DECIDE;
4=DISAGREE; 5=STRONGLY DISAGREE

During the past year, I got into physical fights more frequently

Table VIII-22

STUDENT DATA
INTERVENTION QUESTIONNAIRE

CONFLICT RESOLUTION

Students were asked to circle YES or NO to whether the following topics were discussed in their classes. If the topics were discussed, the students had to circle YES or NO to whether the topics were useful to them.

ACTIVE LISTENING. Checking to see whether you understand the other person correctly and whether he/she understands you.

"I" MESSAGES. Telling the other person what you think, not reading other person's mind and tellign him/her what he/she thinks.

"NEEDS" VS. "POSITIONS". Talking about the needs, interests, and feelings of you and the other person rather than of your opposing positions.

NEGOTIABLE VS. NON-NEGOTIABLE **CONFLICTS**. What kinds of conflicts should be avoided because there are no good solutions; what kinds of styles do different people have.

INDIVIDUAL CONFLICT STYLE. How do you personally tend to deal with most conflicts, what kinds of conflict styles do different people have.

PUTTING YOURSELF IN THE OTHER PEOPLE'S SHOES. How other people's view points might be different from yours, how to understand the other person's point of view.

ANGER AND VIOLENCE. How anger affects your ability to handle conflict.

REFRAMING THE ISSUES. Talking about the issues in other ways to find more common ground between yourself and the other person.

CRITICIZE IDEAS AND NOT PEOPLE. Criticize what people say rather than criticizing who or what they are.

"WIN-WIN" SOLUTIONS. To conflict versus compromises. Finding solutions where everyone gets what they need, rather than solutions where everyone gets some of what they need.

Table VIII-22 (continued)

For use of Conflict Resolution:

Q. How often have you used what you have learned about handling conflict:

At Home, At Work/Job, At School, With Friends.

SCALE: 1=NEVER; 2=SELDOM; 3=OCCASIONALLY;
4=FREQUENTLY; 5=ALWAYS

Table VIII-23

STUDENT DATA
INTERVENTION QUESTIONNAIRE

COOPERATIVE LEARNING

Students were asked to circle YES or NO to whether the following topics were discussed in their classes. If the topics were discussed, the students had to circle YES or NO to whether the topics were useful to them.

SHARING IDEAS together through group discussion.

SHARING BONUS POINTS if we learned the material well.

TEACHING OTHER STUDENTS.

LEARNING HOW TO WORK TOGETHER as a group.

EVALUATING how our group worked together.

DIVIDING THE LESSON so that each student had to learn a piece of it and to teach it to the other students.

HAVING DIFFERENT ROLES in a group such as "reader", "writer", "encourager", "summarizer".

GROUP MUST ALL AGREE on answers. One answer sheet, all sign answer sheet, all write down one answer.

For liking of Cooperative Learning:

Q. How did you like working in groups where you have to work together cooperatively in order to do class assignments?

SCALE:
1=DISLIKED IT VERY MUCH; 2=DISLIKED IT
3=DIDN'T LIKE OR DISLIKE IT; 4=LIKED IT; 5=LIKED IT A LOT

For learning in cooperative groups:

Q. When you were learning together in groups, did you learn more or less than usual?

SCALE:
1=MUCH MORE; 2=MORE; 3=ABOUT THE SAME; 4=LESS; 5=MUCH LESS.

Chapter IX: The Effects of Conflict Resolution and Cooperative Learning Interventions Upon Adolescent Vocational Readiness[*]

Introduction

The purpose of the study reported in this chapter is to determine the effects of the educational interventions of cooperative learning and conflict resolution upon adolescent vocational readiness. This study addresses the important question of how teenagers can be better prepared to resolve conflicts constructively and interact cooperatively in the workplace.

Finding work and becoming economically independent is one of the most important events during the transition from adolescence to adulthood (Dayton, 1981). A large number of youth are failing to achieve such transitions successfully. Desire for a meaningful job may be unfulfilled because there is no such job or because young people are lacking the skills of job seeking and on-the-job behavior, not because they lack the technical skills to do the job (e.g., Eggemen, Campbell & Garbin, 1969). For example, it has been demonstrated that the information concerning how the potential worker gets along with other people is of greater importance during the job interview than information concerning employable skills (Hollandsworth, Kazelskis, Stevens & Dressel, 1979). Also, one of the most frequent reasons for firing workers is that they lack the skills necessary for working well with others (Schuh, 1973; Urlich & Trumbo, 1965).

Since most work implies frequent interaction among workers, it is common for conflicts of various sorts to occur during the course of work. Conflict may arise between parties when self-interests clash or the actions of individuals adversely affect productivity and/or working relationships (Chasnof & Muniz, 1985). Conflict may in addition occur because of the rapid transition in organizational size and complexity coupled with technological advances and the increasingly common multicultural composition of organizations. The altered nature and structure of work require enhanced collaborative and conflict resolution skills for dealing with these changes (Kohn, 1986; Tjsovold & Johnson, 1983).

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[*] This chapter was prepared by Lela Tepavac.

One of the reasons conflict may take a destructive course is due to the lack of skills needed for constructive conflict resolution (Deutsch, 1973). Research has shown that understanding, confronting, and constructively resolving conflicts enhances organizational productivity and interpersonal relationships. Teaching cooperative learning has been shown to encourage mutual helping, peer support, greater acceptance of others from different cultures and backgrounds, higher self-esteem, and greater ability to take the cognitive and affective perspective of others.

Adolescents, as members of the future work force, need to be equipped with vocational skills that would help them build more healthful and productive organizations. Work readiness pertains to work attitudes, values, and a variety of skills relevant for the individual's work performance (Herr, 1984). In addition to the possession of commonly recognized work habits, such as punctuality and regularity, the image of the "ideal worker" is changing to include emphasis on such skills as problem-solving, cooperativeness, and constructive conflict management (Miller, 1984).

One way of providing students with opportunities for acquiring vocational readiness is to encourage a movement between school and workplace through various forms of career education and work experience (Coleman, 1974). Despite the extensive favorable assertions concerning the value of work experience, its benefits are not as yet empirically well established (Watts, 1980). Although there is some evidence that career education and work experience may facilitate the acquisition of work-related attitudes, skills, and knowledge (e.g., Tesolowsky & Halpin, 1978; Yen & Healey, 1977), these effects appear to be short-lived (see Owens, Owen & Druian, 1979).

Research evidence suggests that the quality of adolescent work experience is generally limited by the lack of interesting jobs and jobs that provide learning opportunities (Greenberger, Steinberg & Ruggiero, 1982). Existing jobs rarely supply adolescents with opportunities to exercise basic school-taught skills (Steinberg, 1982). In addition, little formal instruction is provided. Most tasks are repetitive, menial, and require little exercise of cognitive competencies or personal initiative (Greenberger, Steinberg & Ruggiero, 1982).

In order to better prepare young people for their future work roles, educational institutions implement a variety of programs. In addition to career education and work internships that are common to many schools, there is an increased recognition of a need for designing training programs aimed at enhancing work readiness. Given the importance of interpersonal skills in the complex and fast changing modern workplace, training students in collaborative skills and constructive conflict resolution seems to be a task of utmost importance.

Three important questions may be asked about the psychosocial outcomes of such training: 1) What effects does training have on adolescent work readiness (e.g., acquisition of work-related information from various resources; work values; and work-related knowledge)? 2) Which kinds of personal attributes relevant to the work environment are promoted by the training (e.g., problem-solving, self-esteem, locus of control, general well-being)? 3) What effects does training have on the perceptions of adolescents by their employers?

Most research conducted on the effects of cooperative learning and conflict resolution training has been confined to the school environment and has rarely extended beyond the classroom. By including data gathered from employers regarding students' work internships, this study looked forward to implications for vocational policy and practice as well as for education. The research was conducted at three of the four campuses of Alternative High School (AHS). As part of their program plan, students at AHS were required to complete a work internship (see Appendix A). Through the interventions of our research project, they were exposed to conflict resolution and/or cooperative learning training.[1] It was hoped that positive effects of this training upon adolescent work readiness would provide vocational educators with new methods of training that could enable students to become more effective workers.

Hypotheses:

1. The cooperative learning and the conflict resolution interventions will have positive effects on student vocational readiness.
    1.1. Students will demonstrate an increased amount of work-related information obtained from different resources.
    1.2. Students will demonstrate more positive work values.
    1.3. Students will demonstrate an increase in work-related knowledge.
2. Adolescents with higher self-esteem, more internal locus of control, and more favorable general well-being will demonstrate higher vocational readiness.
3. Employers will rate more positively students who demonstrate higher work readiness.

Methods

Sample

The participants in this study were students from three campuses of an inner-city alternative high school. 558 subjects were pretested. This number is discrepant from the number of students that completed a pretest version of other questionnaires used in the larger study since the vocational instrument was introduced after the initial data were already collected. Only 85 of 558 pretested students were posttested due to high turnover and absenteeism. Male adolescents comprised 46% of the sample, while females comprised 54%. Of 558 students that completed the pretest, 90% were either of Hispanic or African American descent (represented about equally). The rest of the student population was ethnically diverse (e.g., Asian, White, Hispanic-Black, etc.). Subjects ranged in age from 16 to 25 years with an average age of 18.7. They were of similar socioeconomic status.

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[1] Campus A received conflict resolution training, Campus B received both interventions, and Campus C was exposed to cooperative learning. These interventions were aimed at advancing collaborative skills and conflict resolution skills that are relevant in the work environment. Some training sessions concerned actual problems students encountered at work. Role playing and brainstorming possible solutions were often used to help students learn to deal constructively with arising work problems. Some typical problems stressed during training sessions were: relationship with supervisor, having more say in the workplace, lack of respect, boring and dull work, sexual harassment, discrepancy between hours worked and pay, etc.

Vocational Readiness Constructs

Subjects were asked to respond to items concerning their future employment (measure adapted from Kuder, 1966, and Super, 1970). Prior to computing the descriptive statistics and reliability coefficients, vocational variables were submitted to factor analysis. The obtained constructs pertain to the amount of work-related information obtained from different resources (e.g., school, employment agencies, family); work values (e.g., job autonomy, job security, work success); and knowledge relevant for obtaining employment. Results of factor analyses are shown in Tables IX-9 through IX-12.

In addition to self-reported vocational readiness, several subject variables were measured (e.g., self-esteem, locus of control, problem-solving, general well-being) as well as demographic variables (age, gender, ethnicity). Students were also asked to assess their perceived improvement in the areas of cooperation and conflict resolution. Supervisors at the work internship sites and teachers at school rated a sample of subjects regarding their work performance and behavior.

Analysis Plan

The analysis plan involved several steps. First, work readiness at the time of the pretest was assessed. This involved determining students' career goals and gathering a subjective as well as an objective assessment of their work-related knowledge. Second, data reduction through factor analysis was performed. Descriptive statistics and reliabilities for the study constructs were computed. The score distribution for each measure was inspected to determine its general shape. Third, inferential statistics were used to determine patterns by demographic variables (gender, ethnicity, and school site). Fourth, associations between the study variables were inspected. In addition to intercorrelations of self-reported variables, subject self-perceived characteristics were compared to employer and teacher perceptions of students. Fifth, the effects of training on student vocational readiness were examined. This analysis was performed by inspecting: a) pre-post differences of vocational readiness scores; b) associations of work readiness constructs at the posttest with measures of student exposure to training; c) associations of work readiness constructs at the posttest with variables that were affected by the intervention; d) associations of change scores of vocational variables with training exposure measures and with student self-reported characteristics; e) multiple regression analysis was employed to predict work readiness posttest scores as well as employer ratings of students using student self-report and training exposure measures as independent variables.

Results

Description of Student Work Readiness

Students aspired to hold a variety of jobs in the future ranging from professional positions to skilled worker jobs. However, they demonstrated a sparse knowledge about the world of work and often provided inaccurate information regarding requirements for their future careers. For example, 43% of students were not sure or did not know how to apply for a job in a big company and 49% were not sure or did not know how to write a resumé. Objective appraisal of student work-related knowledge revealed similar results (Occupational Outlook Handbook, published annually by The U.S. Department of Labor Bureau of Labor Statistics, was used as a criterion). For example, less than 1/4 of the students (23%) were able to accurately describe the education/training needed for their preferred jobs; and almost 3/4 of the adolescents did not know, were inaccurate, or provided incomplete information when asked where they could get education needed for their desired job. These results are shown in Tables IX-13 through IX-15.

Descriptive Statistics and Reliability

The range of possible and observed scores, means, and standard deviations for the measures used in this study are presented in Table IX-1. The obtained statistics are contrasted with possible scale ranges and scale midpoint to assess the skewness of observed scores.

Several trends are clear in these data. The full or almost the full range of possible scores was observed on all work readiness measures, problem-solving dimensions, and general well-being constructs. The observed ratings on the less favorable side of psychological variables (locus of control and self-esteem) and on ratings by others (employers and teachers) tended to be skewed toward the scale midpoint. Ratings on the favorable side of the midpoint for the same measures tended to be evenly distributed. Overall, the distribution of scores for all scales was somewhat skewed. Without exception, mean scores were on the favorable side of the midpoint of the possible score range; higher than the midpoint for favorably, and lower for unfavorably scored scales. Despite the skewed distributions, the variability of measures was sufficient for the intended analyses.

Reliability was estimated using Cronbach's coefficient alpha. Internal consistency was computed for the previously published scales (e.g., Rosenberg's Self-Esteem Scale), for constructs that resulted from factor analyses (e.g., vocational constructs), and for measures that were composed by summing up appropriate items (e.g., employer ratings). The Cronbach alphas ranged from .45 to .93 (see Table IX-1).

Gender, Ethnic, and School Differences

Patterns by demographic variables prior to intervention were examined. Several differences between gender groups and between school sites were detected. No significant differences between ethnic groups were found.

Male students reported greater amount of work-related information obtained from their families and friends than females (t=1.98, p< .05). Males also rated the importance of social success in their lives higher than their female colleagues (t=2.08, p< .05). Both employers and teachers overall perceived female students more favorably than males ($t=-1.92$, $p<.06$; and $t=-2.47$, $p<.15$ respectively).

Students from Campuses B and C reported more work-related information obtained from their families and friends than subjects from Campus A ($F=7.99$, $p<.001$). Students from Campus B rated the importance of job autonomy higher than respondents from Campus A ($F=4.18$, $p<.01$), and the importance of social success higher than subjects from both Campuses A and C ($F=13.93$, $p<.001$). Employers rated Campus B students as better adapted to the work environment than subjects from Campus C ($F=4.06$, $p<.02$).

Intercorrelations Among Study Variables

Correlations among study variables are presented in Tables IX-2 through IX-5. Intercorrelations among vocational readiness variables are shown in Table IX-16.

Table IX-2 presents associations between self-reported vocational variables and psychological and mental health variables. Most correlations are low, but in the predicted direction. Greater amount of work-relevant information was associated with more systematic and less avoidant problem-solving, higher self-esteem, more positive psychological states, and lower scores on anxiety and depression. More positive work values were correlated with more systematic and less avoidant problem-solving, more internal locus of control, higher self-esteem, and more positive psychological states. Greater work-related knowledge was associated with a more systematic problem-solving approach, higher self-esteem, and more positive psychological states.

Table IX-3 presents correlations between vocational variables and perceptions of students by their employers and teachers. Employers rated favorably students' attitudes toward work and contact with others in the work environment for subjects who placed a high value on general job security. Adolescents who reported a greater amount of work-related information were perceived as well adapted. Interestingly, students who placed a high value on work success were perceived negatively by their employers.

Teacher ratings of student behavior (BRS Total Score and factors obtained in factor analysis (see Table IX-17) were correlated with student self-reported vocational readiness. Students who were perceived by their teachers as socially withdrawn reported less work-related information from different resources; placed less value on job autonomy/meaningfulness, work success, and social success; and demonstrated sparse knowledge regarding their future jobs. Students who were seen as depressed were likely to report less work-related information obtained from various sources and assigned a lower value in evaluating a job to the importance of work conditions and social success.

Table IX-4 presents associations between self-reported psychological and mental health variables and ratings of students by their employers and teachers. Employers' overall perception of students as well as their rating of student behavior at work were unfavorable for subjects who reported avoidance when solving problems. Interestingly, students who described themselves as systematic problem-solvers were likely to be perceived negatively regarding their attitudes toward work. In addition, subjects with more internal locus of control were rated as less adapted to the work environment. Teachers were likely to rate favorably students who were less avoidant when dealing with problems, had more internal locus of control, higher self-esteem, and more positive psychological states.

A comparison of objective ratings of students by their employers and teachers revealed a trend of overall agreement. These results are shown in Table IX-18. Despite a very small sample size (N=18), several statistically significant associations were obtained. The more cheerful that students were perceived by their teachers, the more favorable ratings they got from the employers regarding contact with others at work. Adolescents who were seen as depressed by teachers were likely to be perceived unfavorably by their employers, with the exception of their appearance at work.

Effects of Training on Student Work Readiness Pre-post Comparisons

Comparisons of pretest and posttest scores on the vocational variables are shown in Table IX-5. Inspection of results suggests a trend of slight improvement regarding reported amount of work-related information received from school or employment agencies. Also, students' overall knowledge of work-related issues improved. Scores pertaining to student work values significantly declined. At the posttest, students were likely to place a lower value on the importance of general job security, job autonomy/meaningfulness, and work conditions than prior to training.

Correlations Between Vocational Variables and Training Exposure Measures

After examining the consistency of several indicators of student exposure to training, three measures were selected for analyses in this study: students' subjective assessment of how much they had learned cooperative skills during the past year; students' subjective assessment of how much they had learned conflict resolution during the past year; and teacher self-report of the percentage of time they used cooperative learning in their classes. The latter measure was employed in analyses that pertain only to Campuses B and C since Campus A did not receive cooperative learning intervention. Intercorrelations of training exposure measures are presented in Table IX-19. The two subjective assessment measures were positively correlated. No significant associations were found among student self-reported learning and teacher assessment of the percentage of time they have used cooperative learning.

Table IX-6 presents correlations between the training exposure measures and the posttest scores on the vocational variables. Increased self-reported learning of cooperative learning and conflict resolution was overall associated with greater amount of work-related information, more positive work values, and greater work-relevant knowledge. Students at Campus B were likely to place higher value on the importance of general job security, job autonomy, and work conditions when they were exposed to those teachers that claimed they used cooperative learning more often in their classes.

Correlations Between Vocational Scores and Variables that Demonstrated Improvement Due to the Intervention

Posttest scores on vocational readiness were correlated with variables that demonstrated improvement due to training (see Zhang, 1991, and Chapter VII). These results are shown in Table IX-7. Meaningful associations of these variables suggest indirect effects of the training upon student work readiness.

Students who scored high on systematic/planned problem-solving were likely to gain more work-relevant information, demonstrate more positive work values, and acquire more work-relevant knowledge. Avoidant/ineffective problem-solvers obtained less work-related information. Acquisition of internal locus of control, higher self-esteem, more positive psychological states, and greater social support were associated with greater amount of work-related information, more positive work values, and greater work-related knowledge. Lower scores on anxiety and depression were associated with more positive work values.

Change Score Results

Change scores on vocational variables (posttest minus pretest) were correlated with training exposure measures and with student psychological and mental health variables. These results are displayed in Tables IX-20 and IX-21.

Increase in the amount of work-related information was positively associated with student self-reported improvement regarding conflict resolution skills for Campus C. Increase in the amount of work-relevant knowledge was associated with self-reported improvement in both cooperative learning and conflict resolution for Campus C.

Decreased work values scores were associated with training exposure measures. For example, decrement in student ratings of the importance of general job security was associated with lower percentage of time teachers reported they used cooperative learning in their classrooms for Campus B subjects.

Increase in work-related information was associated with more internal locus of control orientation. Augmented work-relevant knowledge was associated with more systematic problem-solving, more internal locus of control, higher self-esteem, and more positive psychological states for Campus C students. Decrement in work value scores was associated with more avoidant/ineffective problem-solving, lower self-esteem, more external locus of control, and less favorable psychological and physical well-being.

Multiple Regression Results

Multiple regression results are presented in Tables IX-22 through IX-28. Constructs pertaining to work readiness and employer perceptions of students were used as dependent variables. Systematic problem-solving and favorable well-being were significant predictors of the amount of work-related information adolescents acquired from various resources. Students' self-esteem scores were significant predictors of their work values and of employer ratings of student behavior at work. Subjects' scores on positive psychological states were significant predictors of their work-related knowledge.

Variables describing student exposure to training were significant predictors of vocational constructs (see Tables IX-25 through IX-27). Self-reported learning of conflict resolution was a significant predictor of student evaluation of the importance of work success. Self-reported learning of working with groups was a significant predictor of work-relevant knowledge.

Teachers' self-reported percentage of time they used cooperative learning in their classrooms was a significant predictor of work values for subjects at Campus B. These results are shown in Table IX-8. Subjects who assigned a higher value to the importance of general job security and job autonomy/meaningfulness were likely to be in the classrooms of those teachers that reported greater use of cooperative learning.

Discussion

Although this research has its limitations, a number of interesting results were nonetheless obtained. The findings support the conclusion that occupational information, work values, and knowledge of the world of work are important aspects of vocational maturity during adolescence. Results, in addition, suggest that these dimensions of adolescent vocational readiness could be bolstered by introducing training in conflict resolution and cooperative learning into secondary school curricula.

The pervasiveness of unrealistic aspirations regarding future jobs suggests that in specifying their occupational preferences, youngsters pay more attention to the kind of person they would like to be than to the kind of person they presently perceive themselves to be. Therefore, high school years should be mostly an exploratory period regarding adolescents' career plans. However, given the age of subjects in this sample (mean: 19 years) and their socioeconomic status, it is likely that the majority of them will seek employment immediately after high school. In order to facilitate the forthcoming job search and enhance subsequent work performance, appropriate training in conflict resolution and cooperative learning are needed to help equip students with the social and vocational skills necessary for success in the world of work.

Occupational information demonstrated by students was sparse and superficial. One reason why high school students know so little about the occupations they are considering may be that they have not sought out, taken advantage of, or been effectively helped to make good use of appropriate sources of information. Another problem may be that adolescents do not know what aspects of occupations and of their own behavior they should inquire into and how they might proceed to do so. A clearer understanding of what they need to know about the world of work and about themselves before embarking on their first job, coupled with more efficient use of appropriate sources of information, would help to reduce floundering both in high school and in the post-high school years.

The hypothesis of positive association between favorable personal attributes (higher self-esteem, more internal locus of control, favorable well-being, more systematic and less avoidant problem-solving) and greater work readiness was confirmed. Students who demonstrated greater work readiness and favorable personal attributes were perceived more positively by their employers and teachers. This result accentuates the significance of educational interventions designed to buttress adolescent psychological characteristics as well as the skills and behaviors that are relevant for occupational success. Given the positive impact of conflict resolution and cooperative learning training on these variables, it is clear that such an intervention represents an important asset that could be used to enhance adolescent work readiness.

Decrease in students' scores regarding work values is an intriguing finding. It is possible that having had actual work experience, and perhaps having accepted a limited amount of job responsibility, the individual student might be able to make a more realistic appraisal of work values. For example, assessment of the value of job autonomy may be overinflated when it concerns hypothetical situations. Actual work experience, characterized by frequent interactions with others and the necessity of collaboration in order to carry out the majority of tasks, might contribute to the adolescent's reevaluation downward of job autonomy.

Another possible explanation of the decrement in work values pertains to the nature of jobs usually performed by adolescents. Given that youngsters often perform meager and insignificant tasks, it is not surprising that their appraisal of work values decreases after being disappointed with such jobs. Employers' negative perceptions of students who placed a high value on future work success, who were systematic problem-solvers, and who had an internal locus of control orientation might well be indicative of meaningless job tasks assigned to adolescents. If youngsters are merely expected to complete their tasks with no involvement in the decision-making process, it is plausible to believe that supervisors with such low expectations would not be appreciative of behaviors characteristic of adolescents who have high job aspirations, an internal locus of control orientation, and approach problems systematically and in a planned manner. Such adolescents could be more demanding and may require a higher, and unwelcome, level of involvement on the part of employers.

Finally, it is important to note that decreased scores on variables describing work values were associated with lower exposure to the intervention. It is possible that adolescents who lack appropriate interpersonal skills and the ability to work well with others, once in an actual work setting, tend to depreciate values such as job autonomy or work success since their experience has proven to be frustrating and disappointing.

Results of this study cast doubt on the relevance of work internship experience for high school adolescents. Observations of interns in the work environment and interviews conducted with the school staff have attested to such a conclusion. The value of the internship experience may be brought into question in terms of enhancing adolescent vocational maturity. Observations of students at the internship sites and work-related discussions during the training sessions suggest that most jobs were tedious and did not provide a meaningful focus for adolescents' lives. Most students have worked in unskilled positions performing fairly routinized tasks that required little formal instruction.

Ways to generate meaningful work experience for students in school need to be expanded. New efforts in school/industry cooperation and sharing of facilities, personnel, and information need to be developed. If the workplace is to become a truly vital context for adolescent socialization, it needs to be designed more deliberately with such aims in mind as: personal responsibility taking, task interdependence, intergenerational contact, etc. (Greenberger & Steinberg, 1981).

Despite its limitations, this research represents a step forward in explaining work readiness and its amenability to improvement within a program of conflict resolution and/or cooperative learning training. It is hoped that this study will stimulate further thinking and research on adolescent vocational readiness and the evaluation of educational interventions aimed at its enhancement. The findings of this study can be used (1) to assess a high school student's skills, behaviors, and personal characteristics relevant to his or her work readiness; (2) to build on or remedy vocationally relevant assets and deficits; and (3) to determine what kinds of work experiences students need in order to obtain a clearer picture of themselves and the world of work. The study thus provides validation of a programmatic means of tailoring education to better meet the vocational needs of today's students.

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Appendix A: Description of Students' Vocational Experience

Vocational Experience at Alternative High School

Students in the inner-city alternative high school where research was conducted are required to take career education classes and undertake a work internship for one or two ten-week cycles in order to graduate. Most of the students entering the school have either dropped out of or requested transfers from other high schools and may therefore have already fulfilled these requirements.

Required career education courses are: (1) Working Citizen (teaches students about the workplace in general; how to get a job; the application process; resumé writing; how to use various resources to find a job; how to choose a career); (2) Personal Finance Management (teaches students how to handle one's resources and how to make decisions, set goals, manage one's time, make a budget).

The work internship program has been established to provide students with vocational experiences and assistance in locating employment after leaving school. The program is intended to foster social skills and work habits, and to provide practical employment experience. The internship is monitored by school staff (paraprofessionals at two schools and a teacher at the third site). In order to start an internship, students are supposed to be academically in good standing and have a satisfactory attendance record.

Most internships are organized by the schools and take place at three worksites. Students perform a variety of part-time jobs ranging from involvement in an intergenerational program and city businesses to building basic vocational skills. In addition to these positions, some students gain work experience through other independent school contacts or through their own arrangements. Students are paid for their work.

Table IX-1

Descriptive Statistics for Study Measures and Range of Possible Scores

Scale (#items)	Alpha	Posbl. Scores	Obsrv. Scores	Scale Midpt.	Mean	SD	Scoring Direction
Work							
SCHEMP(4)	.80	4-20	4-20	12.0	13.8	3.91	hi=more info
BPEOTV(3)	.60	3-15	3-15	9.0	10.1	2.77	hi=more info
FAMFRND(2)	.66	2-10	2-10	6.0	7.2	2.13	hi=more info
GENSEC(3)	.60	3-12	3-12	7.5	10.7	1.55	hi=more imp.
JOBAUT(5)	.73	5-20	5-20	12.5	16.9	2.59	hi=more imp.
WORKCON(4)	.68	4-16	4-16	10.0	12.9	2.34	hi=more imp.
WKSUCCS(3)	.67	3-12	3-12	7.5	11.0	1.36	hi=more imp.
SOCSUCC(5)	.60	4-16	4-16	10.0	11.0	2.64	hi=more imp.
KNOWL(10)	.93	10-50	10-50	30.0	35.8	9.55	hi=more info
Psych.Vars							
SPS(3)	.69	3-15	3-15	9.0	11.1	2.39	hi=more sys.
AIPS(5)	.45	5-25	5-25	15.0	14.2	3.43	hi=more avd.
I/E(6)	.56	6-30	10-30	18.0	21.0	3.58	hi=more int.
SE(10	.82	10-40	17-40	25.0	32.0	4.74	hi=high est.
POSPS(7)	.79	7-42	9-42	24.5	29.2	6.69	hi=more pos.
PHYWB(7)	.65	7-42	8-36	24.5	24.7	5.12	hi=more hlt.
NEGPS(8)	.88	8-48	8-48	28.0	23.6	9.23	hi=more neg.
Ratings by Others							
ERS(30)	.94	30-270	112-265	150.0	205.6	39.64	hi=more pos.
att(17)	.94	17-153	47-153	85.0	107.5	28.19	hi=more pos.
beh(4)	.81	4-36	5-36	20.0	30.7	8.03	hi=more pos.
con(2)	.93	2-18	5-18	10.0	15.2	3.32	hi=more pos.
adp(4)	.81	4-36	9-36	20.0	28.2	7.30	hi=more pos.
app(2)	.86	2-18	2-18	10.0	15.2	3.73	hi=more pos.
BRS(25)	.93	25-225	62-215	125.0	149.9	32.09	hi=more pos.

Note:

SCHEMP	Info school/empl.	POSPS	Pos. psychol. states
BPEOTV	Info books/TV/people	PHYWB	Physical health
FAMFRND	Info family/friends	NEGPS	Neg. psychol. states
GENSEC	General job security	ERS	Emp.ratings -tot.score
JOBAUT	Job autonomy/meaning	att	ERS (student att)
WORKCON	Work conditions	beh	ERS (student beh)
WKSUCCS	Work success	adp	ERS (student adapt)
SOCSUCC	Social success	app	ERS (student appear)
KNOWL	Work knowledge	BRS	Beh. rat. by teachers
SPS	Systematic/planned problem-solving		
AIPS	Avoidant/ineffective problem-solving		
I/E	Locus of control		
SE	Self-esteem		

Table IX-2

Pearson Correlations Between Work Questionnaire Variables and Mental Health and Psychological Variables
(N=293; pretest)

	SPS	AIPS	I/E	SE	POSPS	PHYHL	NEGPS
SCHEMP	.135*	.083	.027	.041	.123*	.053	-.062
BPEOTV	.184***	.133*	.034	.079	.103	-.010	-.035
FAMFRND	.145**	.128*	-.013	.106*	.222***	.095	-.189***
GENSEC	.073	.055	.134*	.117*	.011	-.043	-.003
JOBAUT	.232***	.112	.129*	.131*	.089	-.034	.043
WORKCON	.178**	.166**	.082	.054	.086	-.083	.067
WKSUCCS	.079	-.008	.094	.110	.095	-.023	.050
SOCSUCC	.252***	.050	.073	.129*	.155**	-.003	-.072
KNOWL	.236***	-.033	.086	.204***	.135*	.050	-.071

*** p<.001; ** p<.01; * p<.05;

Scoring: higher score = more of a construct except for AIPS

Note:

SCHEMP	Info About Future Job From School/Emp. Agencies
BPEOTV	Info About Future Job From Books/TV/People
FAMFRND	Info About Future Job From Family/Friends
GENSEC	Importance of General Job Security for Future Job
JOBAUT	Importance of Job Autonomy/Meaning for Future Job
WORKCON	Importance of Work Conditions for Future Job
WKSUCCS	Importance of Work Success in Life
SOCSUCC	Importance of Social Success in Life
KNOWL	Work Knowledge
SPS	Systematic/Planned Problem Solving
AIPS	Avoidant/Ineffective Problem Solving
I/E	Locus of Control
SE	Self-esteem
POSPS	Positive Psychological States
PHYHL	Physical Health
NEGPS	Negative Psychological States

Table IX-3

Pearson Correlations Between Employer Ratings of Students and Teacher Ratings of Students and Self-Reported Vocational Variables (N=45 and N=58 respectively; pretest)

	EMP	ATT	BEH	CON	ADP	APP	BRSTOT	CHEER	AGGR	WITH	CAR	DEPR
1	-.045	-.087	.052	-.060	-.055	-.150	.187*	.041	.039	-.315**	.006	-.172$^+$
2	.150	.111	.149	.170	.302*	.038	.016	.123	.009	-.005	-.254*	-.147$^+$
3	-.143	-.156	-.001	-.217	-.063	-.078	-.149$^+$	-.186*	.158$^+$	-.215*	-.171$^+$	-.202*
4	.202	.286*	.187	.440**	.045	-.006	.014	.015	-.076	.010	-.092	-.019
5	.107	.071	.105	.245	.206	-.182	.149$^+$	-.042	-.106	-.205*	.092	-.018
6	-.151	-.116	-.112	.102	.049	-.242	.066	.068	.031	-.102	-.082	-.160$^+$
7	-.356*	-.214	-.227	-.078	-.145	-.212	.177$^+$	.120	-.028	-.196*	-.068	.043
8	-.016	-.064	.063	.055	.049	-.029	.114	-.032	.044	-.242*	.075	-.184*
9	-.025	-.045	.034	-.177	.053	.037	-.070	-.141	.060	-.184*	-.067	.015

$^+$ $p<.1$; * $p<.05$; ** $p<.01$; *** $p<.001$

Note:

EMPTOT	Employer Ratings (ER) Total Score
ATT	ER - Student attitude toward job/coworkers
BEH	ER - Student overt behavior at work
CON	ER - Student contact with others at work
ADP	ER - Student adaptiveness to work environment
APP	ER - Student appearance at work
1	Info About Future Job From School/Emp. Agencies
2	Info About Future Job From Books/TV/People
3	Info About Future Job From Family/Friends
4	Importance of General Job Security for Future Job
5	Importance of Job Autonomy/Meaning for Future Job
6	Importance of Work Conditions for Future Job
7	Importance of Work Success in Life
8	Importance of Social Success in Life
9	Work Knowledge
BRSTOT	BRS - Total Score
CHEER	BRS Cheerful/Energetic/Striving/Hardy
AGGRESS	BRS Aggressive/Inattentive/Immature
WITHDR	BRS - Withdrawn
CARING	BRS - Caring/Just
DEPRESS	BRS - Depressed

Table IX-4

Pearson Correlations Between Employer Ratings and Teacher Ratings of Students and Student Self-Reported Mental Health and Psychological Variables (N=58)

(pretest)

	EMPTOT	ATT	BEH	CON	ADP	APP	BRSTOT
SPS	-.170	-.230*	-.189	-.047	.020	-.028	-.034
AIPS	-.251*	-.178	-.367**	-.012	-.060	-.089	-.246**
I/E	-.071	.113	-.092	.016	-.228*	-.011	.263***
SE	.101	.061	.009	.057	.052	-.017	.251**
POSPS	-.099	-.038	-.217	-.016	-.183	-.171	.225**
PHYHL	.027	.068	.113	.019	.078	-.203	.057
NEGPS	.096	.097	.110	.099	.076	.108	-.092

* p<.10; ** p<.01 *** p< .001

Note:

Scoring: higher score = more positive construct except for AIPS & NEGPS

EMPTOT	Employer Ratings (ER) Total Score
ATT	ER - Student attitude toward job/coworkers
BEH	ER - Student overt behavior at work
CON	ER - Student contact with others at work
ADP	ER - Student adaptiveness to work environment
APP	ER - Student appearance at work
BRS	Teacher Ratings (Total Score)
SPS	Systematic Problem Solving
AIPS	Avoidant/Ineffective Problem Solving (hi=neg)
I/E	Locus of Control (hi=more internal)
SE	Self-esteem
POSPS	Positive Psychological States
PHYHL	Physical Health
NEGPS	Negative Psychological States (hi=negative)

Table IX-5

Pretest and Posttest Means and Standard Deviations for Work Questionnaire Variables (N = 85)

	Pretest Mean	Posttest Mean	t	df	sig t
SCHEMP	13.6 (4.40)	14.3 (4.02)	-.94	65	.176
BPEOTV	9.9 (2.97)	10.1 (3.37)	-.51	71	.308
FAMFRND	7.7 (2.01)	7.8 (2.22)	-.50	81	.308
GENSEC	10.7 (1.44)	10.0 (1.83)	3.12	74	.002
JOBAUT	16.7 (2.52)	16.1 (3.09)	1.45	66	.077
WORKCON	12.7 (2.32)	12.1 (2.87)	1.49	69	.071
WKSUCCS	10.8 (1.64)	10.2 (2.07)	2.61	76	.006
SOCSUCC	10.9 (2.51)	11.1 (3.06)	-.72	73	.237
KNOWL	36.5 (9.36)	38.2 (9.05)	-1.26	67	.106

Note:

Scoring: higher score = more of a construct

SCHEMP	Info About Future Job From School/Emp. Agencies
BPEOTV	Info About Future Job From Books/TV/People
FAMFRND	Info About Future Job From Family/Friends
GENSEC	Importance of General Job Security for Future Job
JOBAUT	Importance of Job Autonomy/Meaning for Future Job
WORKCON	Importance of Work Conditions for Future Job
WKSUCCS	Importance of Work Success in Life
SOCSUCC	Importance of Social Success in Life
KNOWL	Work Knowledge

Table IX-6

Pearson Correlations Between Posttest Vocat. Variables and Measures of Student Exposure to Training (N=85)

		Learned CL	Learned CR	Teacher Self-Report % of Time Used CL
SCHEMP	(All)	.176*	.157*	-.053
	(A)	.335**	.144	
	(B)	.255*	.020	-.098
	(C)	.272*	.353**	.024
BPEOTV		.064	.118	-.017
	(A)	.094	.062	
	(B)	.205	-.038	-.071
	(C)	.156	.292*	.053
FAMFRND		.329***	.173*	.025
	(A)	.023	-.213+	
	(B)	.034	-.050	.066
	(C)	.300**	.284*	.028
GENSEC		.200*	.175*	.082
	(A)	.303*	.294*	
	(B)	.039	.192	.492***
	(C)	.296**	.246*	.002
JOBAUT		.244**	.333**	-.043
	(A)	.296*	.336*	
	(B)	.058	.316*	.464***
	(C)	.277*	.239*	-.145
WORKCON		.250**	.162*	-.053
	(A)	.303*	.205+	
	(B)	.101	.002	.367**
	(C)	.347**	.060	-.153
WKSUCCS		.259**	.324**	-.075
	(A)	.227+	.205+	
	(B)	.132	.522***	.249
	(C)	.271*	.251*	-.090
SOCSUCC		.163*	.251**	-.038
	(A)	.383**	.142	
	(B)	-.023	.316*	.082
	(C)	.120	.101	.030
KNOWL		.350***	.365**	.050
	(A)	.279*	.136	
	(B)	.091	.182	-.011
	(C)	.316**	.330*	.088

Note:* p<.05; ** p<.01; *** p< .00;scoring:high=more construct

SCHEMP	Info School/Empl.	WORKCON	Imp. of Work Conditions
BPEOTV	Info Books/TV/People	WKSUCCS	Imp. of Work Success
FAMFRND	Info Family/Friends	JOBAUT	Imp. of Job Autonomy
		GENSEC	Imp. of Gen. Job Sec.
KNOWL	Work Knowledge	SOCSUCC	Imp.of Social Success

Table IX-7

Pearson Correlations Between Work Readiness Variables and Variables That Improved Due to the Intervention

(N=85; posttest)

	SPS	AIPS	I/E	SE	POSPS	PHYHL	NEGPS	SUPPORT
SCHEMP	.266**	-.245*	.149*	.137	.367***	.350***	-.083	.170*
BPEOTV	.231*	-.168*	.024	.007	.299**	.151*	-.011	-.075
FAMFRND	.258**	-.197*	.138	.186*	.401***	.468***	-.184*	.298**
GENSEC	.107	-.059	.205*	.284**	.085	.206*	-.237**	-.001
JOBAUT	.197*	-.011	.249**	.259**	.128	.042	-.104	.043
WORKCON	.199*	-.078	.227*	.314**	.244**	.291**	-.208*	.065
WKSUCCS	.171*	-.116	.071	.342**	.187*	.134	-.186*	.178*
SOCSUCC	.267**	.048	.148	.236*	.157*	.150*	-.116	.161*
KNOWL	.296**	.051	.221*	.333**	.381***	.137	-.021	.275**

Note:

** p<.01; * p<.05; $^{+}$ p<.07

Scoring:

Vocational variables - hi = more positive
Other variables - hi = more of a construct

SCHEMP	Info About Future Job From School/Emp. Agencies
BPEOTV	Info About Future Job From Books/TV/People
FAMFRND	Info About Future Job From Family/Friends
GENSEC	Importance of General Job Security for Future Job
JOBAUT	Importance of Job Autonomy/Meaning for Future Job
WORKCON	Importance of Work Conditions for Future Job
WKSUCCS	Importance of Work Success in Life
SOCSUCC	Importance of Social Success in Life
KNOWL	Work Knowledge
SPS	Systematic/Planned Problem Solving
AIPS	Avoidant/Ineffective Problem Solving
I/E	Locus of Control
SE	Self-esteem
POSPS	Positive Psychological States
PHYHL	Physical Health
NEGPS	Negative Psychological States
SUPPORT	Social Support (family; school; work)

Table IX-8

Individual Structural Equations for the Prediction of Work Variables From the Psychological Variables, Mental Health Variables and Exposure to Training (Teacher Self-Report of % of Time Using CL) for Campus B (N=37; posttest)

Dependent Variable/ Predictor Variables	R^2	F	ß	t	sig t
Importance of general job security/					
SPS			-.07	- .46	.6460
AIPS			-.12	- .78	.4446
I/E			-.05	- .31	.7606
SE			.35	2.01	.0540
POSPS			-.05	- .27	.7880
PHYHL			.19	.99	.3299
NEGPS			.10	.50	.6211
SEXP	.41	2.47*	.41	2.81	.0088
Importance of job autonomy/meaningfulness/					
SPS			-.31	-1.96	.0609
AIPS			-.07	- .42	.6763
I/E			.32	1.75	.0921
SE			.14	.79	.4375
POSPS			.06	.31	.7613
PHYHL			-.06	- .32	.7520
NEGPS			.10	.52	.6114
SEXP	.46	2.65*	.39	2.55	.0172

Note:

* p< .05

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
NEGPS = Negative Psychological States
SEXP = Teacher Self-Reported Use of CL (% of time)

Table IX-9

WORK QUESTIONNAIRE: Factor Analysis: (N=558-pretest scores)

How important is each of the following factors in deciding what kind of job you plan to have ?
Range 1-4 :(very important; important; somewhat important; not important)

Item Loadings	Fac1	Fac2	Fac3
Having opportunities to be original and creative	.819	.068	.123
Having e freedom to make my own decisions	.721	.129	.147
Having work that is interesting to me	.544	.107	.477
Meeting and socializing with people	.535	.525	.044
Having a job where I can help others and that is important to society	.451	.297	.148
Avoiding high-pressure jobs	.038	.708	.078
Having a job where I'll be looked up by others	.203	.691	.140
Having a good location and surroundings	.337	.624	.197
Having opportunities for promotion	-.018	.501	.466
Having security with a permanent job	.127	.114	.770
Knowing that I'll make lots of money	.084	.234	.614
Knowing that I can get this job	.295	.032	.687

Note: All items were scored in the same direction
higher score = less important
Three factors 52.8% of variance explained

Factor 1: Job autonomy/meaningfullness
Factor 2: Work conditions
Factor 3: General job security

Table IX-10

WORK QUESTIONNAIRE: Factor Analysis: (N=558-pretest scores)

How much information do you already have about the job you would like to have in the future ?

Range 1-5 :(very much; much; some; little; very little)

Item Loadings	Factor 1
What kinds of promotions might be available in this job	.797
The time it will take to get additional training/education	.783
The cost of additional training and/or education	.783
Where to get additional education or training	.777
The usual tasks you will perform on this job	.757
The education and/or training required for my job	.743
The kind of people you would be working with	.731
How many hours a week you will need to work to have this job	.725
How to go about getting this job	.644
The average salary range	.577

Note: All items were scored in the same direction
higher score = less information

One factor - Work Knowledge (58.7% of variance explained)

Table IX-11

WORK QUESTIONNAIRE: Factor Analysis: (N=558-pretest scores)

How important is each of the following to you in your life ?

Range 1-4 :(very important; important; somewhat important;
not important)

Item Loadings	Factor 1	Factor 2
Being able to find steady work	.821	.024
Being successful in my work	.801	.057
Having lots of money	.646	.188
Having strong friendships	.328	.459
Working to correct social and economic inequalities	.077	.719
Being a leader in the community	.006	.694
Getting away from this area	-.083	.628

Note: All items were scored in the same direction
higher score=less important

Two factors 50.7% of variance explained

Factor 1: Work success

Factor 2: Social success

Table IX-12

WORK QUESTIONNAIRE: Factor Analysis: (N=558-pretest scores)

How would you rate the amount of information you get from the sources listed below ?

Range 1-5 :(very much; much; some; little; very little)

Item Loadings	Fac1	Fac2	Fac3
Counselor or advisor	.834	.006	.179
Teachers/school staff	.831	.033	.195
Occupational education classes	.586	.361	.206
Employment agencies	.596	.492	.127
Books, magazines, newspapers	.130	.788	.102
TV or radio advertisements	-.098	.715	.407
People already working	.443	.583	-.140
My friends	.186	.197	.811
My family	.232	.047	.793

Note: All items were scored in the same direction
higher score = less information

Three factors 65.5% of variance explained

Total scale

Factor 1: Amount of Work-related Info From School/Employer

Factor 2: Amount of Work-related Info From Books/TV/People

Factor 3: Amount of Work-related Info From Family/Friends

Table IX-13

Student career goals after they finished their education (N = 558).

	%
Architect/Engineer	5
Art/Entertainment	9
Business/Clerical	19
Computer program.	8
Financial/Banking	5
Medical	10
Lawyer/Law	16
Social Service	6
Skilled/Service worker	12
Other*	10

Note:

* Other (homemaker; journalist; airline pilot; airline mechanic; traffic; military; real estate; sports; education; public relations; archaeologist; F.B.I.; psychologist)

Table IX-14

Student Work-related Knowledge (Subjective Assessment):

(N=558)

	% Yes	% Not sure	% No
Do you know how to?			
Apply for job in big company	57	36	7
Choose school program that will help to get into college	62	32	6
Apply to college for admission	47	42	11
Find out about different jobs	76	20	3
Fill out job application	92	7	1
Write resume	51	38	11
Handle interview	83	15	2
Get info about military service	54	26	20

Table IX-15

Student Work-related Knowledge (Objective Assessment):

	% Do not know	% Inaccurate	% Incomplete	% Accurate
Describe educ/training needed for desired job (293)*	15	10	52	23
Where could get educ/training needed for desired job (293)	18	5	51	26
How long would take to get needed educ/training (429)	18	13	29	40
Estimate tuition cost (429)	53	12	20	15
Describe job duties (429)	24	7	54	15
Describe people would work with (293)	19	1	70	10
Estimate weekly hours (293)	20	12	17	51
Describe expected promotion (293)	47	2	37	13
How to get desired job (293)	27	3	58	12
Other requirements for job (e.g. apprenticeship) (136)	32	16	52	0
List steps to get desired job (136)	22	16	50	12
Estimate average annual salary (136)	44	30	9	17

Note:

* N varies for different items because there were three slightly different versions of the pretest

Table IX-16

Intercorrelations Among Work Questionnaire Variables (N=558)

	1	2	3	4	5	6	7	8	9
1 SCHEMP		.485*	.423*	.178*	.289*	.285*	.195*	.402*	.350*
2 BPEOTV			.353*	.182*	.252*	.250*	.185*	.335*	.249*
3 FAMFRND				.047	.112**	.159*	.048	.330*	.235*
4 GENSEC					.465*	.427*	.474*	.181*	.100**
5 JOBAUT						.519*	.342*	.411*	.208*
6 WORKCON							.354*	.402*	.163*
7 WKSUCCS								.303*	.153*
8 SOCSUCC									.272*
9 KNOWL									

* p<.001; ** p<.05

Note:

SCHEMP	Info About Future Job From School/Emp. Agencies
BPEOTV	Info About Future Job From Books/TV/People
FAMFRND	Info About Future Job From Family/Friends
GENSEC	Importance of General Job Security for Future Job
JOBAUT	Importance of Job Autonomy/Meaning for Future Job
WORKCON	Importance of Work Conditions for Future Job
WKSUCCS	Importance of Work Success in Life
SOCSUCC	Importance of Social Success in Life
KNOWL	Work Knowledge

Table IX-17

Factor Analysis: BEHAVIOR RATING SCALE: (N = 211)

How characteristic of the student are the listed traits... Range 1-9 :(1 - not at all or never characteristic; 2; 3 - a little or infrequently characteristic; 4; 5 - somewhat or occasionally characteristic; 6; 7 - much or often characteristic; 8; 9 - very much or very often characteristic)

Item Loadings	F1	F2	F3	F4	F5
Striving	.874	.157	.035	-.001	.093
Hardiness	.808	.077	.199	.028	.235
Planfulness	.803	.173	.063	.064	.195
Effectiveness	.792	.280	.172	.038	.156
Creativity	.676	.007	.126	.076	-.308
Cooperativeness	.673	.096	.206	.456	-.103
Self-Esteem	.671	.190	.369	.076	.234
Leadership	.662	.221	.436	.153	-.111
Cheerfulness	.575	.004	.535	.250	.229
Energetic	.557	-.205	.582	-.062	.174
Socially Poised	.501	.492	.199	.103	.152
Immature	.269	.772	.138	.102	.005
Hyperactive/nervous	-.008	.767	.037	.231	.209
Aggressive	.067	.674	-.082	.448	.052
Inattentive	.463	.640	.250	-.127	.018
Strangeness/Bizarreness	.078	.605	.294	-.037	.255
Social Withdrawal	.339	.080	.786	-.006	.093
Unpopular	.104	.391	.609	.202	.247
Overanxious	.095	.305	.568	.024	.142
Just	.458	.053	-.070	.717	.067
Caring	.563	.067	.259	.550	-.118
Competitiveness	-.209	.330	.121	.680	.013
Psychosomatic problems	.004	.177	.177	-.070	.782
Depressed	.189	.123	.440	.015	.675
Delinquent	.248	.305	.011	.317	.462

Note: All items were scored in the same direction
Higher score = more positive trait
Five factors 67.1% of variance explained

BRS Total		(Alpha = .93)
F1	Cheerful/Energetic/Striving/Hardy	(Alpha = .93)
F2	Aggressive/Inattentive/Immature	(Alpha = .81)
F3	Withdrawn/Unpopular	(Alpha = .70)
F4	Caring/Just	(Alpha = .63)
F5	Depressed/Delinquent	(Alpha = .63)

Table IX-18

Pearson Correlations Between Employer Ratings and Teacher Ratings of Students (N=18)

	EMPTOT	ATT	BEH	CON	ADP	APP
BRSTOT	.158	.222	-.180	.192	.220	.038
CHEER	.216	.240	-.047	.388*	.301	-.172
AGGRESS	-.049	-.097	.123	.055	-.138	.029
WITHDR	-.001	-.058	.093	-.091	.301	-.268
CARING	-.150	-.141	-.136	-.337	.070	.124
DEPRESS	-.241	-.209	-.174	-.069	-.317+	.391*

* p<.05; + p<.07

Note:

Scoring: hi = more of a construct

EMPTOT	Employer Ratings (ER) Total Score
ATT	ER - Student attitude toward job/coworkers
BEH	ER - Student overt behavior at work
CON	ER - Student contact with others at work
ADP	ER - Student adaptiveness to work environment
APP	ER - Student appearance at work
BRSTOT	Teacher Ratings (BRS) Total Score
CHEER	BRS Cheerful/Energetic/Striving/Hardy
AGGRESS	BRS Aggressive/Inattentive/Immature
WITHDR	BRS Withdrawn
CARING	Caring/Just
DEPRESS	Depressed

Table IX-19

Intercorrelations Among Measures of Student Exposure to Interventions (N=115)

		1	2	3
1 Learned CL	(All)			
	(A)			
	(B)			
	(C)			
2 Learned CR	(All)	.399*		
	(A)	.364***		
	(B)	.311***		
	(C)	.452***		
3 Teacher Self-Rep. % Time Used CL	(All)	.078	.048	
	(A)[a]			
	(B)	.039	.047	
	(C)	.108	.011	

Note:

* p< .05; ** p< .01; *** p< .001

[a] Campus A has not received a cooperative learning intervention

Table IX-20

Pearson Correlations Between Change Scores on Vocational Readiness Variables and Training Exposure Measures (posttest) (N=85)

		Learned Cooperative Learning	Learned Conflict Resolution	Teacher Self-Report of % of Time Used Cooperative Learning
CSCHEMP	(All)	.076	-.091	.139
	(B)	.046	-.198	.155
	(C)	.140	.369*	.147
CGENSEC	(All)	.061	.036	.180+
	(B)	-.051	.022	.691***
	(C)	.113	.113	.020
CJOBAUT	(All)	-.022	.071	-.020
	(B)	-.135	-.033	.244
	(C)	.184	.184	.008
CWORKCON	(All)	.184+	.073	-.203*
	(B)	.162	.010	.145
	(C)	.135	.135	-.384**
CWKSUCCS	(All)	.110	.025	.013
	(B)	-.018	-.027	.246
	(C)	.421**	.421*	-.037
CKNOWL	(All)	.151	.146	-.152
	(B)	.007	-.076	-.167
	(C)	.566***	.566***	-.102

Note: + p< .1; * p<.05; ** p<.01; *** p< .001

School A is not represented because of small sample size

Change Scores

CSCHEMP	Info About Future Job From School/Emp. Agencies
CGENSEC	Importance of General Job Security for Future Job
CJOBAUT	Importance of Job Autonomy/Meaning for Future Job
CWORKCON	Importance of Work Conditions for Future Job
CWKSUCCS	Importance of Work Success in Life
CKNOWL	Work Knowledge

Table IX-21

Pearson Correlations Between Change Scores on Vocational Readiness Variables and Posttest Scores of Psychological and Mental Health Variables (N=85)

		SPS	AIPS	I/E	SE	POSPS	PHYWB	NEGPS
CSCHEMP	(All)	.088	.112	.169^{+}	.067	.101	.054	.114
	(B)	.150	-.052	.158	.180	-.013	.070	.160
	(C)	.240	.060	.433*	.149	.230	.166	-.075
CGENSEC	(All)	-.178	-.210*	.120	.165	-.050	.085	-.094
	(B)	-.087	-.442*	.306^{+}	.352*	.099	.235	-.275
	(C)	-.126	-.131	.090	.148	-.098	-.142	.013
CJOBAUT	(All)	-.076	.080	.141	.153	.014	-.096	-.079
	(B)	-.229	.154	.326^{+}	.048	.248	-.069	-.299
	(C)	-.058	.151	.189	.270	-.054	-.096	.050
CWORKCON	(All	-.043	-.213*	.264*	.378**	.179	.284*	-.231*
	(B)	-.189	-.473*	.581**	.458*	-.049	.185	-.115
	(C)	.088	-.148	.192	.440**	.279^{+}	.300*	-.261^{+}
CWKSUCCS	(All)	-.163	.027	-.075	.057	-.111	-.149	-.034
	(B)	-.107	-.143	.501**	.171	.160	-.172	-.032
	(C)	-.081	-.027	-.220	-.007	-.318*	-.205	-.008
CKNOWL	(All)	.201^{+}	.113	.077	.206^{+}	.186	-.157	-.031
	(B)	.186	.295	-.047	.287	.021	-.356^{+}	.052
	(C)	.342*	.003	.399*	.316*	.433**	.072	-.096

Note: * $p<.05$; ** $p<.01$

School A is not represented because of small sample size

Change Scores = posttest minus pretest

CSCHEMP	Info School/Emp. Agencies
CGENSEC	Imp.of General Job Security
CJOBAUT	Imp. of Job Autonomy
CWORKCON	Imp. of Work Conditions
CWKSUCCS	Import. of Work Success
CKNOWL	Work Knowledge

SPS	Sys. Problem-solving
SE	Self-Esteem
POSPS	Pos. Psychol. States
PHYHP	Physical Health
NEGPS	Neg. Psychol. States

Table IX-22

Individual Structural Equations for the Prediction of Work Variables From the Psychological Variables, Mental Health Variables and Exposure to Training (Teacher Self-Report of % of Time Using CL) for Campuses B and C (N=89; posttest)

Dependent Variable/ Predictor Variables	R^2	F	ß	t	sig t
Info from school & employer/					
SPS			.22	2.00	.0489
AIPS			-.10	- .92	.3621
I/E			.10	.83	.4085
SE			-.08	- .63	.5308
POSPS			.37	2.77	.0070
PHYHL			.00	.03	.9780
NEGPS			.20	1.49	.1414
SEXP	.20	2.51*	-.06	- .60	.5489
Info from family & friends/					
SPS			.20	1.84	.0695
AIPS			.05	.50	.6198
I/E			-.05	- .49	.6270
SE			.00	.08	.9390
POSPS			.30	2.23	.0283
PHYHL			.07	.49	.6226
NEGPS			.10	.72	.4722
SEXP	.16	2.012*	.04	.35	.7265

Note:

* $p < .05$

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
NEGPS = Negative Psychological States
SEXP = Teacher Self-Reported Use of CL (% of time)

Table IX-23

Individual Structural Equations for the Prediction of Work Variables From the Psychological Variables, Mental Health Variables and Exposure to Training (Teacher Self-Report of % of Time Using CL) for Campuses B and C (N=89; posttest)

Dependent Variable/ Predictor Variables	R^2	F	β	t	sig t
Importance of general job security/					
SPS			.09	.87	.3868
AIPS			-.03	- .29	.7725
I/E			.11	.96	.3423
SE			.31	2.44	.0168
POSPS			-.21	-1.64	.1044
PHYHL			.14	.98	.3284
NEGPS			-.03	- .20	.8425
SEXP	.18	2.462*	.10	1.05	.2981
Importance of work success/					
SPS			.03	.23	.8194
AIPS			.02	.21	.8326
I/E			.05	.38	.7059
SE			.40	3.03	.0033
POSPS			-.06	- .45	.6556
PHYHL			-.18	-1.22	.2270
NEGPS			-.15	-1.11	.2725
SEXP	.16	1.984*	-.06	- .58	.5618
Work Knowledge/					
SPS			.07	.62	.5371
AIPS			.11	.97	.3332
I/E			.11	.84	.4055
SE			.03	.22	.8236
POSPS			.34	2.43	.0176
PHYHL			.03	.21	.8351
NEGPS			.07	.50	.6177
SEXP	.17	2.013*	.06	.59	.5578

Note:

* $p < .05$

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
NEGPS = Negative Psychological States
SEXP = Teacher Self-Reported Use of CL (% of time)

Table IX-24

Individual Structural Equations for the Prediction of Employer Ratings (posttest; N = 45)

Dependent Variable/ Predictor Variables	R^2	F	β	t	sig t
Behavior/					
SPS			-.04	.41	.6834
AIPS			-.03	.19	.8508
I/E			.21	1.13	.2691
SE			.49	2.56	.0154
POSPS			-.31	-1.57	.1274
PHYHL			.04	.21	.8383
NEGPS	.33	1.87*	.08	.41	.6834

Note:

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
NEGPS = Negative Psychological States

Behavior = student behavior at work as perceived by the supervisor (e.g., manipulates people; is suspicious; is impolite; focuses only on own interests; etc.).

* $p < .1$

Table IX-25

Individual Structural Equations for the Prediction of Work Variables From the Psychological Variables, Mental Health Variables and Exposure to Training (Student Self-Reported Learning of Conflict Resolution and Working in Groups for Campus A) (N=249; posttest)

Dependent Variable/ Predictor Variables	R^2	F	β	t	sig t
Work Knowledge/					
SPS			-.25	-1.52	.1387
AIPS			-.07	- .34	.7339
I/E			-.26	-1.25	.2226
SE			.51	2.61	.0141
POSPS			.39	1.97	.0576
PHYHL			.01	.07	.9422
NEGPS			.19	1.02	.3149
PEFFGR			.32	1.89	.0679
BETTCR	.41	2.36^*	-.09	- .49	.6256

Note:

$^+$ p< .1 * p< .05

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
NEGPS = Negative Psychological States
PEFFGR= Learned Working in Groups
BETTCR= Learned Conflict Resolution

Table IX-26

Individual Structural Equations for the Prediction of Work Variables From the Psychological Variables, Mental Health Variables and Exposure to Training (Student Self-Reported Learning of Conflict Resolution and Working in Groups for Campus B) (N=250; posttest)

Dependent Variable/ Predictor Variables	R^2	F	ß	t	sig t
Importance of work success/					
SPS			-.05	- .30	.7647
AIPS			.18	1.11	.2781
I/E			.33	1.73	.0940
SE			.24	1.34	.1926
POSPS			-.22	-1.14	.2640
PHYHL			-.02	- .11	.9166
NEGPS			-.15	- .76	.4533
PEFFGR			-.13	- .77	.4496
BETTCR	.43	2.35*	.43	2.49	.0191

Note:

* p< .05

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
NEGPS = Negative Psychological States
PEFFGR= Learned Working in Groups
BETTCR= Learned Conflict Resolution

Table IX-27

Individual Structural Equations for the Prediction of Work Variables From the Psychological Variables, Mental Health Variables and Exposure to Training (Student Self-Reported Learning of Conflict Resolution and Working in Groups for Campus C) (N=239; posttest)

Dependent Variable/ Predictor Variables	R^2	F	β	t	sig t
Work Knowledge/					
SPS			-.02	- .19	.8515
AIPS			.05	.36	.7182
I/E			.32	2.16	.0366
SE			-.21	-1.27	.2106
POSPS			.31	1.90	.0646
PHYHL			.37	1.79	.0805
NEGPS			.34	2.04	.0479
PEFFGR			.25	1.69	.0986
BETTCR	.38	3.01*	.07	.50	.6167

Note:

* $p < .01$

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
NEGPS = Negative Psychological States
PEFFGR= Learned Working in Groups
BETTCR= Learned Conflict Resolution

Table IX-28

Individual Structural Equations for the Prediction of Work Variables From the Psychological Variables, Mental Health Variables and Exposure to Training (Teacher Self-Report of % of Time Using CL) for Campus C (N=50; posttest)

Dependent Variable/ Predictor Variables	R^2	F	ß	t	sig t
Info from school & employer/					
SPS			.30	2.07	.0445
AIPS			-.08	- .60	.5492
I/E			.06	.35	.7250
SE			-.11	- .60	.5514
POSPS			.44	2.44	.0192
PHYHL			.00	.04	.9697
NEGPS			.19	1.07	.2906
SEXP	.29	2.17*	.00	.05	.9606
Work Knowledge/					
SPS			.06	.40	.6889
AIPS			.11	.85	.3995
I/E			.31	2.06	.0457
SE			-.13	- .79	.4336
POSPS			.31	1.82	.0756
PHYHL			.36	1.71	.0936
NEGPS			.30	1.79	.0809
SEXP	.33	2.71*	.10	.86	.3958

Note:
* $p < .05$

SPS = Systematic/Planned Problem-solving
AIPS = Avoidant/Ineffective Problem-solving
I/E = Locus of Control
SE = Self-Esteem
POSPS = Positive Psychological States
PHYHP = Physical Health
SEXP = Teacher Self-Reported Use of CL (% of time)
SEXP = Teacher Self-Reported Use of CL (% of time)
NEGPS = Negative Psychological States

Chapter X: Effects of Cooperative Learning and Conflict Resolution on Student-Perceived Social Climate at Alternative High School*

As programs of cooperative learning and/or constructive conflict resolution become fully integrated into schools, basic attitudes and norms of behavior should begin to change. In both cases, through collaborative classroom experiences, and through the experience of conflicts creatively and collaboratively approached, students should begin to regard one another as colleagues rather than rivals.

As noted in Chapter I, it has been theorized and demonstrated that there are a host of effects associated with cooperative as opposed to competitive relations, including: greater trust, friendliness, helping, sensitivity to similarities as opposed to differences, peer support and acceptance, perspective-taking, more positive evaluation of past interactions, and more positive expectations of future interactions (Deutsch 1949, 1973, 1985; Johnson & Johnson, 1983, 1989). If, as the result of cooperative learning and constructive conflict resolution interventions, students on a school-wide basis find themselves more and more in cooperative as opposed to competitive relations with one another, the attendant effects should also come to be felt on a school-wide basis. Such a change would amount to a change in the general social environment, or "social climate," of the school. There is research to support the notion that cooperative learning and conflict resolution can have a positive impact on social climate in schools, the support for the former being somewhat stronger.

Johnson and Johnson (1989) report a meta-analysis of research studies exploring the effects of cooperative learning on social support, one essential aspect of social climate. Their results indicate that cooperative learning tends to increase the sense of social support. Solomon, Watson, Battistich, Schaps, and Delucchi (1990, 1991) incorporated cooperative learning as a key component of their ambitious "Child Development Project." In this case, there were several other intervention components also aimed at the socio-moral development of the students. The fact, then, that Solomon et al. were able to demonstrate significant differences between program and control schools in such social climate dimensions as "sense of community" and "social connectedness" is not exclusively traceable to cooperative learning. It is, however, in combination with the evidence cited by Johnson & Johnson, quite suggestive.

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*This chapter was prepared by Eben A. Weitzman.

Lam (1989) summarizes 14 studies of conflict resolution programs in schools, and concludes that while it is generally believed in the field that such programs have a positive impact on social climate, this belief is not well documented. Of the 14 studies she summarizes, only four report assessment of effects (all positive) on social climate. Van Slyck and Stern (in press) found that peer mediation training had a positive impact on assessments of school climate by those selected and trained as mediators. Such impact was not apparent for the student body as a whole, however, although qualitative data indicated a perception by faculty of a reduction in violence.

Finally, in the current project, Zhang (Chapter VII) has demonstrated the crucial role that the individual's experience of social support and victimization play as mediators of the impact of cooperative learning and conflict resolution interventions on that individual's psychological states and academic achievement. This underscores the importance of assessing the degree to which our interventions succeeded in affecting social climate on the school-wide level.

While the research described above does indicate that some aspects of a school's social climate can be affected by cooperative learning, and probably by conflict resolution interventions as well, none of it goes to the lengths of verifying the sweeping effects on social climate that would be expected from theory, as discussed above.

The study reported in the current chapter was undertaken with the aim of investigating the impact of cooperative learning and conflict resolution interventions on a broad spectrum of dimensions of social climate. The existing theory and research reviewed above suggests that such an impact should be both obtainable with high quality interventions, and of vital importance in mediating the effect of such interventions on students' lives.

These aims were adopted in spite of obstacles discussed in Chapters I, II, and V of this report. One obvious obstacle was that our data covered only the first two years of the intervention. We know that it usually takes three years for teachers to become proficient in cooperative learning (Chapter II), and in fact in this case it was not until year 3 (after our data collection effort had been halted by curtailment of funds) that the teachers at AHS began to feel skilled and at ease in employing the skills we had trained them in (Chapter I).

A second key obstacle was the difficulty we experienced in implementing the training at Campuses B and C (Chapter V). This added to the normal delay discussed above. Finally, AHS aims (and we believed they had largely succeeded in this aim) to create a much more supportive, empowering environment with less destructive conflict than in traditional schools (Chapter V). While this vision is in harmony with the goals of our project, and helped pave the way for its acceptance at AHS, it presents a problem for assessing the effects of our interventions on climate. The question is, how much room was realistically left for improvement of the climate in directions in which AHS had already made great strides?

These three obstacles combined to create a unique challenge to demonstrating the effects of our interventions on climate. The areas in which we wished to have an effect were believed to already be improved well beyond the norm for New York City high schools, and we knew that the project had not been allowed to run as long as it should in order to experience its full effects.

Conceptualizing and Measuring Social Climate

This chapter is concerned with changes in the social climate at AHS over the course of the conflict resolution (CR) and cooperative learning (CL) interventions. Several of the constructs which will be considered here are closely akin to those in the literature on organizational climate, which is generally concerned with the workplace. While the difference in venue does introduce some different issues, this study is still subject to several of the theoretical and empirical issues involved in the organizational climate literature.

In a study of the effects of organizational climate on teachers' experience of work stress, Michela and Lukaszewksi (1986) proposed that "the concept of organizational climate is concerned with workers' perceptions and experiences of psychologically potent features of the workplace, such as . . . autonomy, pride in their work, good working relations with other workers, and so forth" (p. 4). The present study is concerned with students' perceptions and experiences of psychologically potent features of their school environment.

The quantitative measures of climate employed in our project were all subjective reports of perceptions of climate by students and teachers. It should be noted that there has been considerable controversy over whether the use of perceptual measures to capture climate, which many consider to be an objective construct, is appropriate (see, e.g., James & Jones, 1974; Jones & James, 1979; Schneider, 1975). The case made for the use of perceptual measures, however, is convincing (James & Sells, 1981; Michela & Lukaszewski, 1986; Schneider, 1975). Climate, these authors hold, is primarily a matter of the individual's perceptions and cognitive representations of situations and events. In an attempt to address the subjective-objective question, it has been proposed that "if perceptual measurement is to be used, variance in scores must be shown to be related to differences in situations rather than to differences in individuals" (James & Jones, 1974, p. 1108). The present study includes an attempt to meet this criterion.

Another closely related issue in the organizational climate literature has to do with whether what is being assessed is an attribute of the organization or of the individual (Glick, 1985; James & Jones, 1974; Michela & Lukaszewski, 1986). James and Jones proposed differentiating between "organizational climate" on the one hand and "psychological climate" on the other. Michela and Lukaszewski followed Glick in differentiating between "the individual's own experience of the workplace [and] perceptions of the organization as a whole" (Michela & Lukaszewski, p. 5). The present study is primarily concerned with two sets of factors, one of which corresponds to organizational climate, or perceptions of the organization as a whole, and the other of which corresponds to psychological climate, or the individual's own experience in the organization. We have termed the former "External" factors and the latter "Internal" factors.

Questions Addressed in the Present Chapter

In examining the effects of our interventions on social climate, several possible effects had to be taken into account.

AHS vs. Other Schools

AHS is an unusual school in and of itself. We tested the assumption, discussed in the introduction to this chapter, that before our interventions began the climate at AHS was seen as more positive in many ways than at the traditional high schools in the city. We also hoped, by comparing AHS to other schools, to demonstrate that our subjective measures met the criterion proposed by James and Jones (1974) of differentiating between situations.

Campus

Three different intervention strategies were to be carried out, and effects at the three campuses would be assessed separately. In some of the analyses by other investigators on this project (Chapters VII, VIII, IX) direct comparisons among the interventions were made. In order to establish baseline similarities and differences, the climates at the three sites before the interventions began were compared.

Time

We hypothesized that, over time, the interventions would have some overall impact on the social climate. When climate is assessed subjectively, such overall effects are generally measured and discussed as changes in the collective perception of the social climate (Schneider & Reichers, 1983).

Individual changes

We also expected that the interventions would operate on the individual level, by affecting the way that students interacted with and perceived their environments. This analysis coincides with the view of climate as an internal, psychological phenomenon, and our expectation was that this analysis would yield its results primarily in our Internal measures. However, considering the possibility that the individual student's evaluation of the climate of the school as a whole might also change over time, the External factors were also examined.

Exposure

Most of the data collected in this project was of the self-report variety. This has created obstacles to interpretation referred to throughout the various chapters of this report. In an effort to move beyond relationships between different perceptions of a student, and at the same time isolate the effects of our intervention from the effects of AHS, climate variables were tested by regression to see if they could successfully be predicted from two independent Exposure measures: a measure of exposure to conflict resolution training for Campus A and a measure of exposure to cooperative learning at Campuses B and C.

Classroom Ratings by Exposure

The questions above relate to overall experience, and the ways in which the school environment, and the individual student's experience of it, may have changed. The Exposure analysis described above attempts to show how much of these changes are attributable to the interventions.

A more immediate consequence of the interventions should be improvements in the perceived climate in individual classes. Students were asked to make a series of ratings of the one class they attended most often in the month leading up to the survey. Three factors derived from these ratings were tested to see how well they could be predicted from the Exposure measures.

Variables in the Analysis

Seventeen factors have been used in the present analyses (in addition to the three classroom rating factors).[1] As discussed above, these can be divided into two sets. The first consists of what we have termed External factors. These are factors which represent the student's perception of the environment in general. The second set consists of Internal factors. These factors represent aspects of the perceived climate specific to the experience of the student making the ratings.

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[1] For a detailed presentation of the procedures used to arrive at all factors, see Appendix A.

As an illustration, consider the factors "victimization exists" and "individual victimization." The first is computed from items asking how often various things occur in the environment in general, such as students bringing weapons to school, students damaging school property, or students (in general) being offended by racial or ethnic put-downs. The second asks how often the student making the ratings has been victimized, for example, by being mugged for jewelry, being physically attacked, or being pressured to have sex.

The third set of factors were derived from the ratings of a particular class. As noted above, students were asked to pick the class they attended most often in the last month,[2] and answer a series of questions with reference to that class.

Tables X-1a to X-1c present a description of each of the factors used in the analysis grouped into the External, Internal, and Classroom Rating sets. These factors are also described in detail in Chapter III.

Methods and Results

Different types of analyses were appropriate for addressing the various hypotheses under discussion in this chapter. The statistical methods used for each are briefly described below. One general note should be made first, however.

The number of subjects (N) varies for each analysis for two reasons. First, students did not always fill out all the items on the surveys. Some analyses require the presence of answers to many items for a case to be included, while others require answers to only a few. Second, since each of the analyses addresses different comparisons, each involves different subsets of the total sample.

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[2] Students who said they attended all their classes equally were asked to pick the class which met more often. If this did not simplify the choice, they were asked to rate any of the more frequently attended classes they wished to.

AHS vs. Other Schools

Method. For this analysis, ratings of the climate at AHS were taken from the baseline sample of May, 1988. Ratings of other schools were taken from incoming students in September, 1988. Since the latter were new arrivals, with little experience at AHS, on all climate questions they were instructed to answer with reference to their previous schools. Ratings were compared by Multivariate Analysis of Variance (MANOVA) and by univariate t-tests. MANOVA's were performed separately for the External and Internal factor sets. The analysis was carried out at both the AHS-wide level, and at the individual campus level.

Results. As predicted, AHS was rated as having a significantly more positive climate overall than the students' old schools. This expectation was verified in the multivariate test of the External factor set (see Table X-2) and in the tests of individual factors. The difference between schools on the Internal factor could not be interpreted because there was an interaction between campus of AHS and school (AHS vs. old school).[3]

As noted above, AHS was significantly more positive in its climate than students' previous schools on several of the individual factors. For the three campuses together, AHS was rated more favorably on "discipline," "criminal activities," "empowerment," "academic support," "group learning," and "victimization exists" among the External factors, and on "academic image" among the Internal factors.

There were only two exceptions to the perception of AHS as having a better climate. First, the "individual victimization" factor was rated significantly worse at Campus C than at the previous schools of students at Campus C. This factor was rated as significantly better at Campus B than at the previous schools of students at Campus B, while there was no significant difference at Campus

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[3] This multivariate interaction was driven by three factors: "individual victimization," "academic image," and "school support." Of these three, only "individual victimization" shows a significant univariate interaction, which is discussed in more detail below. "Academic image," while more positive at all three campuses, was not significantly more positive at Campus B. "School support" was not significantly different at any of the campuses, but was slightly higher at Campuses A and C, and slightly lower at Campus B.

A. Second, the "social image" factor was rated significantly worse for all 3 campuses together, and for Campus B, considered alone. See Tables X-3 and X-4 for a summary of significant univariate tests for AHS as a whole and for individual campuses.

Campus

Method. The analysis of campus differences was also performed on the baseline data of May, 1988, before any of the interventions began. Campuses were compared by MANOVA on the External and Internal factor sets, and by univariate Analysis of Variance (ANOVA). Contrasts were performed for significant factors to pinpoint which campuses differed.

Results. The multivariate analyses for differences between campuses did not yield meaningful differences. Univariate differences were found on 2 of the External factors. "Empowerment" was found to be higher at Campus A than at Campuses B and C. "Clarity and fairness of policy" was found to be lower at Campus A than at Campuses B and C[4] (see Table X-5).

Time

Method. As an overall measure of change in climate, we wanted to test for changes in the collective perception of AHS students over time.[5] However, we wanted to isolate this change from any associated with individual students' growth, and we also had to account for the possibility that there were changes in the student population which would affect our results. Therefore, we compared the ratings of students being posttested at May, 1989, January, 1990, and May, 1990, using their pretest ratings of AHS to control for cohort differences by analysis of covariance. Each of the External and Internal factors was tested independently. One obvious, but apparently unavoidable, weakness of this design was that in beginning with the May, 1989 posttest, one year into the intervention, we forfeited the ability to detect changes which had occurred over the first year.

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[4] The results for "empowerment" and "clarity and fairness of policy" do not necessarily imply any contradiction. The two factors were uncorrelated at Campus A, $r=-.009$.

[5] This analysis was therefore at the level of aggregate perception of the school.

Results. When all sites were analyzed together, there were significant changes over year two in two factors (see Table X-6). "Discipline" stayed fairly constant from May, 1989 to January, 1990, and then improved significantly by May, 1990. "Clarity and fairness of policy" dropped significantly from May, 1989 to January, 1990, and then rose significantly in May, 1990. The final level was higher, though not significantly so, than the first (see Figure X-1).

When Campus A was analyzed alone, the only significant result was for "clarity and fairness of policy," which showed the same pattern of results as when all sites were analyzed together. There were no significant results for Campuses B or C analyzed alone (see Table X-7).

Individual Changes

Method. The analysis of changes within subjects was carried out by a MANOVA repeated measures design. Pre-test and posttest scores were used, but not the post-posttest.[6] The analysis was limited to students who had rated AHS on the pretest.

Due to violations of statistical assumptions because of low N's, new variables were computed, using means of the variables loading above .50 on a factor, rather than factor scores.[7] Means were allowed to be computed if no more than one variable on a factor was missing, except in the case of 2-variable scales, in which case both had to be present. This strategy greatly increased the available N for the analysis. One of the new factor scales, for "academic image," was unreliable and was not included in the analysis.

Analyses were performed for all sites together and for each site individually. Both multivariate and univariate effects were assessed.

Results. Note that this analysis differs from that of changes over time. The time analysis looks at changes in collective perception from date to date, and is therefore concerned with the school as the level of analysis. The current analysis is concerned with changes in the individual student's perceptions of climate between the times of her/his pre- and post-surveys, regardless of the dates of those surveys. Thus, this is a "within subjects" analysis.

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[6] Inclusion of post-post-tests, while it would have been desirable to show longer-term effects of the interventions, was impossible because of unacceptably low numbers of subjects.

[7] For full statistics on factor scales computed by this method, see Appendix B.

There were a number of significant changes in the individual student's perceptions of climate. There were no significant differences between campuses in the amount of change students experienced.[8]

As shown in Table X-8, there was a significant multivariate effect for change in perceived climate for both the Internal and External factor sets. The change in the Internal set was a negative one, driven by a significant decline in "liking for school and learning" (see Table X-9) and a non-significant decline in "social image." The change in the External set was generally a positive one, largely corresponding to a significant increase in "promotive interdependence" (see Table X-9).[9]

To recap, then, the significant results of the univariate tests of factors[10] were a significant increase in perceived "promotive interdependence," and a significant decline in "liking for school and learning" (see Table X-9).

Exposure

Method. Each of the External and Internal factors[11] were regressed on the objective measures of Exposure to the interventions. For Campus A, this was the measure of Exposure to CR training developed by Dolezal (1991). This measure was based on reconstructions of students' schedules to determine how many hours they were exposed to training by ICCCR staff. Students who were post-post-surveyed had Exposure scores covering the entire period up to the post-post-survey. Students who were only post-surveyed were given Exposure scores for the period up until their post-survey. Thus, for this campus, post-posttested students were likely to be older, have been at AHS longer, and have had more Exposure.

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[8] The factors that reached significance for all campuses combined came out just short of Bonferroni-corrected significance (see following footnote) at individual sites. Since the results are so close, and all in the same directions, results for all campuses together are presented here.

[9] The multivariate effect must be interpreted with caution, however, as it was also contributed to by weak, non-significant declines in a couple of factors at individual campuses.

[10] Since multiple planned comparisons were being made, Bonferroni type adjustments were made to a levels. This resulted in an a'=a/C=.05/9=.006 for the External set and a'=.05/6=.008 for the Internal set.

[11] As was the case for the analysis of Individual Changes, low N forced the use of factor scales rather than factor scores. See Appendix B.

For Campuses B and C, a measure of Exposure to CL was developed by Zhang and Lynch (see Chapter III). The measure is based on the percentage of classroom time a student's teachers say they spend using CL techniques, and the amount of time the student spends with each teacher. The measure covered the last three "cycles" (AHS's name for academic quarters) of the intervention--essentially November, 1989 to May, 1990. Post and post-post measures from May, 1990 were used, and were treated separately. Thus, for these two campuses, post-posttested students were also likely to be older, have been at AHS longer, and have had more exposure, but any exposure prior to November, 1990 would not show up in the Exposure measures.

Results. For posttested students at Campus A, which received the CR intervention, students experienced less "individual victimization," and their "liking for school and learning" and "friend's popularity" increased significantly with their Exposure to the intervention (see Table X-10). Unexpectedly, they also reported that "discipline" was more of a problem the more they were exposed. For post-posttested students at Campus A, "liking for school and learning" and "individual victimization" also tended to improve, though not significantly.

At Campuses B and C, the Exposure measure reflected students' exposure to the CL intervention. Remember that Campus B received CR in the first year and CL in the second, whereas Campus C received only CL, for two years. Also, students being post-posttested in May, 1990, were likely to have been at AHS longer than students being posttested at that date, even though the Exposure measure only captures the last 3 cycles.

Here, the results are somewhat complex. At Campus B, students post-posttested in May, 1990 experienced significantly less "alienation," and found "academic support" significantly better (school work was easier and less discouraging) with more Exposure (see Table X-11). There were no significant effects for students being posttested in May, 1990.

At Campus C, for posttested students, increases in Exposure predicted an increase of reported "group learning," improved "social image," an increase in "liking for school and learning," and a decrease in perceptions of "criminal activity" (see Table X-11). There were no significant effects for post-posttested students.

Classroom Ratings by Exposure

Method. The three factors[12] which resulted from the items asking students to describe the class they attended most often were also regressed on the Exposure measures. A word of caution needs to be introduced here. The class a student chose to rate might or might not have been one in which the interventions were applied. Since Exposure is an estimate of the frequency with which a student is exposed to the interventions, a higher Exposure score indicates nothing more than an increased probability that a student rated a class where the intervention was applied. The only effect we can imagine this might have on the results of the current analysis is to interfere with our being able to significantly predict classroom ratings from Exposure. We thus treat any significant results arising from this analysis with extra confidence.

Results. At Campus A, for post-posttested students,"class liking/learning" and "class student social climate" were significantly predicted by Exposure, and "class cooperativeness" also tended to improve with Exposure, though not significantly (see Table X-12). There were no effects for posttested students. At Campus B, "class liking and learning" improved with Exposure, significantly so for posttested students, and not significantly so for post-posttested students. "Class cooperativeness" and "class student social climate" both improved significantly for post-posttested students, and "class cooperativeness" showed a positive, non-significant trend for posttested students. However, at Campus C there was no significant predictive power.[13]

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[12] Again, factor scales rather than factor scores had to be used because of insufficient N. See Appendix B.

[13] Note, though, that for post-post-tested students the ß's (which in this case are equivalent to Pearson's r) are negative, with Liking and Learning representing the highest correlation.

Discussion

Positive changes over time were found in "discipline" and "clarity and fairness of policy." Individuals tended to experience more "promotive interdependence" over time, but less "liking for school and learning." Students' Exposure to the CR intervention (for post-surveyed students) at Campus A improved their "liking for school and learning," decreased their sense of "individual victimization," increased their evaluation of their best friend as popular, and heightened their sensitivity to "disciplinary" problems. In individual classrooms it also enhanced their "class liking/learning" and evaluation of the "class student social climate." A student's Exposure to the CL intervention at Campus B (for post-post-surveyed students) decreased their feeling of "alienation," improved their sense of "academic support," and in individual classrooms improved their perceptions of the "class cooperativeness" and "class student social climate, while for post-surveyed students it increased their "class liking/learning." Finally, at Campus C, a post-surveyed student's Exposure to CL improved their sense of their "social image," their "liking for school and learning," the frequency with which they reported "group learning," and decreased the extent to which they experienced "criminal activities" as a problem.

The results of the comparison between AHS and students' previous schools seems to meet the criterion set forth by James and Jones (1974) for perceptual measures to be acceptable for description of organizational climate. That is, our measures successfully discriminated between different situations: AHS on the one hand, and students' previous schools on the other.

In general, the results supported our assumption that AHS provides a substantially more favorable climate than do the traditional public high schools in New York City. Students reported better "discipline," less "criminal activity," more "empowerment," that less "victimization exists," and that their individual "academic images" were better. They also reported that they received more "academic support" (school work was less difficult and discouraging). The major exception to this positive trend was that students felt that their "social images" were better at other schools. However, viewed together with the fact that they felt they had better "academic images" at AHS, this may not be a bad thing. The results suggest a change in priorities for students at AHS, shifting from an emphasis on "social image" to one on "academic image."

Finally, students also reported, even before our interventions began, that more "group learning" took place at AHS. This fact, together with the findings just discussed, may have made AHS a particularly difficult place to demonstrate the effects of our interventions, especially on climate. "Group learning" was already substantially more prevalent than in other schools, and the climate was already much more positive. Quite likely, there was a "ceiling" against which we were operating. The fact, then, that the various studies on this project described in the chapters of this report and elsewhere (Dolezal, 1991; Tepavac, 1991) did show meaningful results is all the more encouraging.

The differences between campuses described in earlier chapters notwithstanding, the three campuses did not differ much in climate, as we measured it, before the interventions began. The multivariate effects were not significant, and only two climate factors showed differences: at Campus A as compared to the other two campuses, students felt more "empowered" and reported less of a sense of "clarity and fairness of policy."

In our analysis of changes over time, we found that between May, 1989 and January, 1990, the only change was a drop in "clarity and fairness of policy," and this seemed to be primarily at Campus A. From January, 1990 to May, 1990, however, this factor showed significant improvement, as did "discipline." The change in "discipline" generalized across sites, although it only reached significance when all sites were analyzed together. (This is probably due to the fairly low N at the individual sites.) These changes cannot be directly attributed to our interventions, but are of interest only in a suggestive manner. Unfortunately, there is no way to include the first year of the intervention in a controlled analysis of changes over time, so that questions remain about both changes in the initial period of the intervention and the true magnitude of changes by the end of the second year.

The within subjects analysis had two major findings. First, as a student spent more time at AHS, s/he developed more of a sense of "promotive interdependence" with peers. The concept of "promotive interdependence" is central to Deutsch's theory of cooperation and competition (Deutsch, 1985), the model of cooperative learning built upon it (Johnson, Johnson & Holubec, 1986), and the approach of our intervention in constructive conflict resolution. The creation of such relations was one of the major aims of both interventions.

While this change could not be predicted directly from a student's own Exposure to the interventions, "class cooperativeness," which measured essentially the same constructs for a particular class, was significantly predicted by Exposure at Campus B for post-posttested students. These are generally students who had been at Campus B of AHS throughout the project and thus were the group to experience what was expected to be the optimal combination of CR followed by CL. The same trend, though not significant, was also present for posttested students at Campus B, and for both post- and post-posttested students at Campus C (see Table X-12).

Given these effects in the classrooms (which is where direct Exposure takes place) it may be reasonable to argue that the general increase in "promotive interdependence" experienced by students across sites, regardless of exposure, likely has some relation to the interventions, not necessarily as a result of personal exposure to the interventions, but as a result of the diffusion of the effects of the intervention throughout the campuses.

The second within subjects change is a decrease in "liking for school and learning." We have two tentative explanations for this change. First, it may be that students who first arrive at AHS have unrealistically high expectations, partly in relation to their previous schools, which are reflected in somewhat inflated liking for AHS and enthusiasm about learning. As they spend more time there, they may become somewhat disillusioned.[14] A similar explanation is that by the time of their posttests students were simply running out of enthusiasm for high school, a phenomenon which, for any high school, would not be surprising.

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[14] Note though, that the baseline group used for the comparison between AHS and other schools were fairly veteran students. So if disillusionment was operating, even those who had been around long enough to become disillusioned saw AHS as better than other schools.

Regardless of the actual reason(s) for this change, we feel confident that it does not have to do with our interventions. The overwhelmingly positive findings of the Exposure analyses, including especially the positive impact of Exposure on "liking for school and learning" at Campus C and on "class liking/learning" at Campuses A and B, make it highly unlikely that the interventions would have the effect of reducing "liking for school and learning." On the contrary, it appears that the interventions had the effect of mitigating this phenomenon.

At Campus A, CR Exposure significantly predicted more "liking for school and learning," less "individual victimization," a more popular best friend ("friend popular"), and a heightened awareness of "disciplinary" problems.[15] The last result was unexpected. Presumably, it was due to increased sensitivity, with Exposure, to problems such as violence, obedience, and respect. Note that concurrent with this effect, students also experienced less "individual victimization" and more "liking for school and learning." Viewed as a package, it would seem that while the CR intervention heightened students' awareness of "disciplinary" problems, it also enabled them to reduce the extent to which they were victimized in various ways, improved their feelings about their friends on a social level, and improved their liking for the school and their enthusiasm about learning.

At Campus B, a large part of the story, as discussed above, seems to lie in whether or not students had been around long enough to have experienced both the CR and CL interventions. If they had, they experienced a benefit on the "alienation" factor and experienced more "academic support" (school work easier and less discouraging).

At Campus C, posttested students reported significantly more "liking for school and learning," less "criminal activity," more "group learning," and better "social images" with more CL Exposure. All of these effects are in predicted directions, and the "group learning" effect is particularly nice as a manipulation check. The absence of such effects for the post-posttest group is difficult to explain. For the CL Exposure, the period of exposure measured is the same for the post- and post-posttested groups -- the last three academic quarters of year two. The most likely explanation for the lack of relationship in the post-posttested group is that students who had less Exposure in the measured period may have had plenty of unmeasured exposure to CL over the earlier five quarters.

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[15] For post-tested students. Results for post-post-tested students, with N's of only 8 or 9, where not significant, though a correlation of r=.33 for "liking for school and learning" with Exposure was found.

Finally, the three classroom rating factors were in many cases significantly predicted by Exposure at both Campuses A and B. At Campus A, as discussed earlier, "class liking/learning" and "class student social climate" were significantly predicted to improve by Exposure for posttested students, while "class cooperativeness" for those students, and all three classroom factors for post-posttested students showed a non-significant tendency to improve.

At Campus B, Exposure significantly improved "class liking/learning" for the posttested group, and "class cooperativeness" and "class student social climate" for the post-posttested group. This suggests that CL alone -- which again is what the posttested students at Campus B generally received -- does have a positive impact on students' evaluation of a class, the teacher, and their confidence in their own performance, while the combination of CR and CL -- which the post-posttested group generally received -- has a positive impact on the perceived level of promotive interdependence, investment in and experience of learning, and the social and academic climate among the students in the class.

As discussed earlier, that these effects came through at all is impressive in view of the fact that we were dealing only with probabilities that students would rate the classes in which the interventions were applied. That no classroom effects were found at Campus C is unfortunate, but in light of the obstacles to the implementation of the training there discussed in Chapter V, perhaps not too surprising.

Conclusion

The examination of changes in climate in the current study was complex, and many issues made it particularly difficult both to detect effects and to trace them to our interventions.

Nonetheless, beneficial effects were found, several of which could be directly related to the interventions. The overall pattern -- i.e., that while large effects over time on climate were few there were significant impacts for those students who were more heavily exposed -- suggests that an intervention carried out over a longer period of time could have even greater benefits than those demonstrated in the various studies in the current project. From the perspective of climate, conflict resolution and cooperative learning training in a school such as AHS seem to be worthwhile.

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Table X-1a

Factors in the External Set

Factor	Meaning of Factor
Discipline	General disciplinary issues, such as obedience, respect, attendance and violence.
Criminal Activities	Problems more explicitly criminal in nature--such as drugs, drinking, violence, weapons and stealing--than those in the factor above.
Empowerment	Student empowerment in policy issues. Driven primarily by questions about the extent to which students participate in policy-making and have control over their work.
Clarity and Fairness of Policy	Driven primarily by questions about the extent to which rules are clearly understood, and fairly and evenly applied.
Alienation	Extent of a generalized feeling of alienation. Consisted of items about trust among students, trust between students and teachers, and whether students who get good grades are popular.
Academic Support	Comprised of items about the difficulty of school work, and whether it is frequently discouraging. An item asking whether teachers expect a lot contributed weakly to the factor as well.[16] We thought at first that higher standards would be the "positive" direction on this factor. However, this factor is significantly correlated with "liking for school and learning," a factor from the Internal set, such that as students find school work easier and less discouraging, they report more liking for AHS and more enthusiasm about learning. This suggests that the "positive" direction on this factor in the minds of the students is work being less discouragingly difficult, and teachers' expectations being more reasonable (rather than "too low" or "too high").

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[16] This item loaded on the factor at .47, while we have used the criterion of a loading of .50 for consideration of items in interpreting a factor.

Table X-1a
(continued)

Factor	Meaning of Factor
Group Learning	Asks whether students learn in small groups, and whether teachers help them learn how to work together in groups. This factor does not necessarily imply that the group work is cooperative.
Promotive Interdependence	Asks more specifically about whether the relationship in small work groups is promotively interdependent: i.e. cooperative. Contains items about whether students have to help each other to get a good grade and whether others feel let down if you fail.
Victimization Exists	Driven primarily by items about the extent to which victimization exists in the school in general, and less so by items about whether the student in particular had been victimized. Included were questions about the frequency with which students brought weapons to school, damaged school property, and offended each other with racial or ethnic slurs.

Table X-1b

Factors in the Internal Set

Factor	Meaning of Factor
Social Image	Students answered a number of items rating how they believed other students viewed them. The first factor to come out of these questions concentrated on items about social standing, particularly: popularity, social activity, importance, leadership, and athleticism.
Academic Image	The second factor to emerge from the ratings of how students think they are perceived by their peers was composed primarily of the extent to which students thought they were seen as good students or trouble makers.
Liking for School and Learning	This factor emerged from the same set of general questions about the school as the External factors "alienation" and "academic support." It was comprised of questions about excitement about learning, the importance of doing well, and liking for school.
Individual Victimization	This factor was described in the introduction to this section. It was driven by items asking about the frequency with which the student was victimized in various ways, including theft, vandalism, name calling, and unwanted sexual attention.
Friend Academics	Students were asked to rate their closest friend on a number of attributes. One factor emerging from the ratings was driven by academic issues such as grades, college plans, and attendance
Friend Popular	The second factor from ratings of best friends was composed almost exclusively of the friend's popularity.
School Supportive	Students rated the degree to which the school was supportive or upsetting to them. This was a single questionnaire item.

Table X-1c

Factors in the Classroom Ratings Set

Factor	Meaning of Factor
Class Liking/Learning	This factor represented the degree to which students liked the class and the teacher, and their enthusiasm for learning in the class. It was driven by items asking how much the student liked the class, felt confident s/he would do well, thought the teacher cared and was a good teacher, and thought students learned in the class.
Class Cooperativeness	The classroom ratings included a number of items which correspond to essential characteristics of cooperative versus competitive social relations (see Deutsch, 1985). Several of these clustered together in the factor analysis, creating a factor which seems to indicate the degree to which the classroom climate was cooperative or competitive in nature. The items included whether students felt they had to win out over others in order to do well, whether working with others was a waste of time, how easy or hard it was to find students willing to help them, whether students were likely to put each other down, whether they felt nervous in the class, whether they cared about learning in the class, and whether they did learn in the class.
Class Student Social Climate	This factor represented the general tenor of social relations among students in the class. It was driven by items asking about such things as whether the student had good friends in the class, and felt that others cared about his/her feelings, or really listened to one another.

Table X-2

Multivariate Tests of Differences Between Alternative High and Students' Previous Schools

	N					
	Alternative High	Previous School	Wilks Lambda	F	DF	Sig.
External	209	197	.32	92.88	9, 392	.000*
Internal Interaction	212	185	.90	2.98	14, 770	.000

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*Alternative High School is rated 2.94 standard deviations higher on the canonical variate (the linear combination of factors that is tested in MANOVA) than previous schools.

Table X-3

Univariate Tests of Differences Between Alternative High and Students' Previous Schools; External Factors

Factor	Alternative High		Previous School			
Campus	N	Mean	N	Mean	t	Sig.
Discipline HI=Better discipline						
All Campuses	209	.139	197	-.766	10.48	.000
Campus A	74	.074	74	-.863	6.74	.000
Campus B	65	.272	43	-.678	5.72	.000
Campus C	70	.083	80	-.724	5.84	.000
Criminal Activity HI=Less criminal activity						
All Campuses	209	.152	197	-.295	4.28	.000
Campus A	74	.202	74	-.462	3.82	.000
Campus B	65	.139	43	-.357	2.38	.018
Campus C	70	.110	80	-.108	1.26	.210
Empowerment HI=More empowerment						
All Campuses	209	.513	197	-1.130	25.35	.000
Campus A	74	.750	74	-1.296	19.94	.000
Campus B	65	.300	43	-.906	9.83	.000
Campus C	70	.460	80	-1.097	15.25	.000
Academic Support HI=Easier, less discouraging						
All Campuses	209	.111	197	-.279	4.14	.000
Campus A	74	.090	74	-.338	2.75	.006
Campus B	65	.212	43	-.297	2.73	.007
Campus C	70	.040	80	-.214	1.64	.102
Group Learning HI=More group learning						
All Campuses	209	.237	197	-.660	9.37	.000
Campus A	74	.300	74	-.616	6.00	.000
Campus B	65	.292	43	-.574	4.74	.000
Campus C	70	.120	80	-.746	5.69	.000
Victimization Exists HI=Less victimization						
All Campuses	209	.204	197	-.740	9.35	.000
Campus A	74	.368	74	-.963	8.68	.000
Campus B	65	.198	43	-.334	2.90	.004
Campus C	70	.036	80	-.751	5.16	.000

Table X-4

Univariate Tests of Differences Between Alternative High and Students' Previous Schools; Internal Factors

Factor Campus	Alternative High N	Alternative High Mean	Previous School N	Previous School Mean	t	Sig.
Academic Image HI=More positive						
All Campuses	212	.222	185	-.304	4.73	.000
Campus A	72	.277	77	-.304	3.54	.000
Campus B	70	.021	36	-.103	.60	.546
Campus C	70	.366	72	-.403	4.58	.000
Social Image HI=More positive						
All Campuses	212	-.101	185	.226	-3.69	.000
Campus A	72	-.053	77	.121	-1.07	.287
Campus B	70	-.120	36	.543	-3.24	.001
Campus C	70	-.132	72	.179	-1.86	.064
Individual Victimization HI=Individual less victimized						
All Campuses	212	.045	185	.159	-.50	.616
Campus A	72	.040	77	.198	-1.19	.234
Campus B	70	.233	36	-.267	3.02	.003
Campus C	70	-.138	72	.330	-3.46	.001

Table X-5

Differences Among Campuses; Oneway ANOVA's

	Campus A		Campus B		Campus C				
Factor	N	Mean	N	Mean	N	Mean	DF	F	Sig.
Empowerment HI=More empowerment	74	.750	65	.300	70	.460	2,206	9.82	.000
Clarity/ Fairness HI=More clarity	74	-.287	65	.220	70	.076	2,206	5.93	.003

Differences Among Campuses; Contrasts

	Campus Contrasts			
	B vs. C		A vs. Average(B+C)	
Factor	t	Sig.	t	Sig.
Empowerment HI=More empowerment	1.52	.129	4.19	.000
Clarity/Fairness HI=More clarity	-.93	.354	-3.34	.001

Table X-6

Changes Over Time; All Campuses Together

Factor	Sum of Squares	DF	Mean Square	F	Sig. of F.
Discipline HI=Better discipline	3.49	2	1.75	3.48	.035
Clarity/Fairness HI=More clarity	5.75	2	2.87	4.42	.015

Table X-7

Changes Over Time at Campus A

Factor	5/89	1/90	5/90	Sig.
Clarity/Fairness HI=More clarity	HI(.139)	LO(-.844)	HI(.344)	.026

Table X-8

Multivariate Tests of Within-Subjects Changes

Factor Set	N	Wilks Lamda	Exact F	DF	Sig.
External	94	.81	2.23	9, 83	.028
Internal	90	.83	2.80	6, 82	.016

Table X-9

Univariate Tests of Within-Subjects Changes

Factor	Mean Pre	Mean Post	t	Sig.
EXTERNAL				
Promotive Interdependence	-.129	.184	3.04	.003
INTERNAL				
Liking of School, Learning	.107	-.140	2.75	.007

Table X-10

Factors Regressed on Conflict Resolution Exposure Measure for Campus A; Post- and Post-Post-Surveys

	POST					POST-POST				
Factor	N	β	R^2	F	Sig.	N	β	R^2	F	Sig.
Discipline HI=Better discipline	**54**	**-.29**	**.08**	**4.72**	**.034**	8	.03	.00	.01	.937
Liking/ Learning HI=More liking, learning	**54**	**.25**	**.06**	**3.52**	**.066**	9	.33	.11	.87	.381
Individ. Victimization HI=Individual less victimized	**54**	**.24**	**.06**	**3.21**	**.079**	9	.20	.04	.29	.608
Friend Popular HI=More popular	**54**	**.24**	**.06**	**3.08**	**.085**	8	Correlation could not be computed: no variance on DV			

Table X-11

Factors Regressed on Cooperative Learning Exposure Measure for Campuses B and C; May, 1990 Post- and Post-Post-Surveys

	5/90 POST					5/90 POST-POST				
Factor	N	β	R^2	F	Sig.	N	β	R^2	F	Sig.
CAMPUS B										
Alienation HI=Less Alienated	32	.14	.02	.58	.454	**31**	**.60**	**.36**	**16.22**	**.000**
Academic Support HI=Easier, less discouraging	33	.28	.08	2.62	.115	**28**	**.43**	**.43**	**5.85**	**.023**
CAMPUS C										
Criminal Activity HI=Less criminal activity	**31**	**.31**	**.10**	**3.15**	**.087**	41	-.04	.00	.05	.825
Group Learning HI=More group learning	**31**	**.30**	**.09**	**2.92**	**.098**	42	-.21	.04	1.79	.189
Social Image HI=More positive	**31**	**.39**	**.15**	**5.26**	**.029**	42	-.03	.00	.05	.830
Liking/ Learning HI=More liking, learning	**31**	**.34**	**.11**	**3.75**	**.063**	42	-.08	.01	.27	.604

Table X-12

Classroom Ratings Regressed on Conflict Resolution Exposure at Campus A, on Cooperative Learning at Campuses B and C

	5/90 POST					5/90 POST-POST				
Factor	N	β	R^2	F	Sig.	N	β	R^2	F	Sig.
CAMPUS A										
Class Liking/ Learning HI=More liking, learning	**53**	**.25**	**.06**	**3.38**	**.072**	8	.11	.01	.07	.800
Cooperative HI=More cooperative	54	.18	.03	1.68	.201	9	.34	.12	.93	.366
Student Social Climate HI=More positive	**54**	**.23**	**.05**	**3.00**	**.089**	9	.20	.04	.30	.599
CAMPUS B										
Class Liking/ Learning HI=More liking, learning	**32**	**.31**	**.10**	**3.15**	**.086**	28	.28	.08	2.12	.157
Cooperative HI=More cooperative	33	.23	.05	1.72	.198	**29**	**.61**	**.37**	**15.84**	**.001**
Student Social Climate HI=More positive	33	.09	.01	.23	.635	**29**	**.50**	**.24**	**8.76**	**.006**
CAMPUS C										
Class Liking/ Learning HI=More liking, learning	30	.19	.04	1.05	.314	41	-.25	.06	2.66	.111
Cooperative HI=More cooperative	30	.02	.00	.01	.917	41	-.10	.01	.43	.516
Student Social Climate HI=More positive	30	.01	.00	.00	.948	41	-.21	.05	1.84	.183

Figure X-1

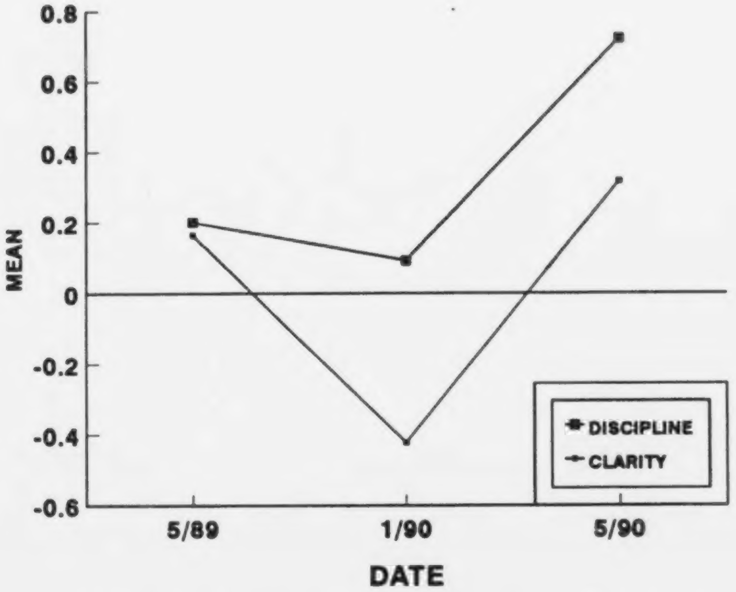

Figure X-1. Changes over time as perceived by students post-tested at each date. All sites together.

Appendix X-A

Principal Components Analyses of Climate Measures

The data on social climate came from numerous scales in the questionnaire. Each of these scales was reduced by principal components analysis, using SPSS V. 4.1 (1991). Varimax rotation was then performed, and factor scores were computer-generated. Tables X-A-1 through X-A-8 present the varimax rotated principal components loadings for all factors in this study. Variables loading above .50 on a factor were taken into account in interpreting the factor. Loadings above .50 appear underscored, and in boldface type in the following tables.

Table X-A-1

Varimax-Rotated Principal Components Loadings on External Factors: "Discipline" and "Criminal Activity"

Variable	Discipline [External]	Criminal Activity [External]
How much of a problem are the following disciplinary situations at AHS? (HI=Not a problem)		
Students refusing to obey school policy	.82	.36
Disrespect for teachers or staff	.80	.35
Disrespect for other students	.78	.34
Students coming late to class	.78	.12
Cutting classes	.75	.32
Drugs used on campus	.16	.87
Drinking liquor, beer, wine on campus	.25	.85
Weapons on campus	.46	.77
Stealing	.35	.73
Violence, student fighting or vandalism	.57	.62

Table X-A-2

Varimax-Rotated Principal Components Loadings on External Factors: "Empowerment" and "Clarity/Fairness of Policy"

Variable	Empowerment [External]	Clarity/ Fairness of Policy [External]
How often are the following things true about AHS? (HI=Always)		
Students have a say in making school policy	.89	.12
Students are treated like adults	.81	.26
Students can work at their own pace	.80	.17
Students can change unfair rules and decisions	.80	.2
Students help decide how courses will be taught	.77	.06
Students know what will happen if they break school rules	.07	.81
Punishments for breaking school policy is the same for all students	.13	.76
Everyone knows what school policy is	.13	.72
School policy is fair	.50	.53

Table X-A-3

Varimax-Rotated Principal Components Loadings on Internal Factors: "Social Image" and "Academic Image"

Variable	Social Image [Internal]	Academic Image [Internal]
How do other students at AHS see you? (HI=Very)		
As popular	.80	-.09
As socially active	.77	.13
As important	.75	.23
As part of the leading crowd	.73	-.22
As athletic	.62	-.03
As a good student	.31	.76
As a troublemaker	.33	-.75

Table X-A-4

Varimax-Rotated Principal Components Loadings on Internal Factor: "Liking for School and Learning" and External Factors: "Alienation" and "Academic Support"

Variable	Liking for School and Learning [Internal]	Alienation [External]	Academic Support [External]
How strongly do you agree or disagree?			
I feel excited about learning	.80	-.01	.12
It's important for me to do well in my school work	.78	-.05	.15
I like school	.71	-.10	.10
Students are friendly at AHS no matter what your ethnic background is	.48	-.37	-.21
There is a teacher or other adult that I can talk about my problems with at AHS	.46	-.19	-.06

Continued next page...

Table X-A-4
(continued)

Variable	Liking for School and Learning [Internal]	Alienation [External]	Academic Support [External]
How strongly do you agree or disagree?			
Students don't trust each other at AHS	-.05	**.72**	.00
Teachers don't trust students at AHS	-.17	**.68**	-.20
Students don't trust teachers and staff at AHS	-.16	**.65**	-.16
Students who get good grades are not popular at AHS	.00	**.64**	-.22
Students at AHS are proud of their school	.39	-.43	-.40
I have trouble making friends at school	-.18	.41	-.37
School work is usually hard for me	-.15	.11	**-.74**
I get discouraged with school work	-.27	.22	**-.66**
Teachers expect a lot from students at AHS	.19	.12	-.48

Table X-A-5

Varimax-Rotated Principal Components Loadings on Classroom Rating Factors: "Class Liking/Learning," "Class Cooperative," and "Class Student Social Climate"

Variable	Class Liking/ Learning [Classroom Rating]	Class Cooperative [Classroom Rating]	Class Student Social Climate [Classroom Rating]
Think about one class. How strongly do you agree or disagree?			
I like this class	.78	.14	.23
I feel confident that I will do well in this class	.76	.22	.12
The teacher in this class cares about my feelings and opinions	.76	.08	.33
Students in this class think the teacher is a good teacher	.69	.07	.35
I deserve the grades I get in this class	.54	.07	.09
In this class, I can express my feelings and opinions openly	.47	.11	.43

Continued next page...

NOTE: One variable loading above .50 on Class Liking/Learing appears on next page.

Table X-A-5
(continued)

Variable	Class Liking/ Learning [Classroom Rating]	Class Cooperative [Classroom Rating]	Class Student Social Climate [Classroom Rating]
Think about one class. How strongly do you agree or disagree?			
I don't care if I learn anything in this class	-.42	**-.70**	.05
I am nervous when I am in this class	-.17	**-.63**	.19
I don't learn anything in this class	**-.53**	**-.63**	.10
To do well, I have to win out against my classmates	.18	**-.62**	-.23
Working with a group of students on a project is usually a waste of my time	-.13	**-.62**	-.36
If I need help in this class, it's usually hard to find students who are willing to help me	-.10	**-.58**	-.43
In this class, students are more likely to "put down" each other than to encourage or praise each other	-.10	**-.51**	-.47
Other students in this class care about my feelings	.19	.06	**.73**
In this class, students really listen to one another	.45	.11	**.61**
I have good friends in this class	.21	.03	**.60**

Table X-A-6

Varimax-Rotated Principal Components Loadings on External Factors: "Group Learning" and "Promotive Interdependence"

Variable	Group Learning [External]	Promotive Interdependence [External]
Think about all your classes at AHS. How often are the following things true? (HI=Very Often)		
I have had classes at AHS where the teacher has the students learn things together in groups	**.92**	.13
I have been in classes where the teacher helps students learn how to work in small groups	**.92**	.13
I have been in classes where other students feel let down if you don't do your best work	-.02	**.88**
I have been in classes where students have to help each other in order to get a good grade	.32	**.71**

Table X-A-7

Varimax-Rotated Principal Components Loadings on External Factor: "Victimization Exists" and Internal Factor: "Individual Victimization"

Variable	Individual Victimization [Internal]	Victimization Exists [External]
How often have the following things happened in the last three months? (HI=Never)		
Someone forced me to hand over money or things (books, bus passes, jewelry) at school	.83	-.01
I was physically attacked in school	.74	.17
I have been pressured or threatened to have sex with someone I did not want to have sex with	.74	.09
I received sexual attention from school or security staff that offended me	.74	.09
I was afraid that someone would physically hurt me at school	.74	.22
Things have been stolen from my locker, lunch table, desk at school	.69	.26
I was offended by name calling or swearing	.66	.26
I have had things damaged by someone wanting to "get back at me"	.64	.34
I was insulted or threatened with words	.56	.31
Students bring weapons to school to protect themselves	.05	.82
Students are put down by name calling that refers to their racial or ethnic background	.23	.78
Students at AHS deliberately damage school property	.23	.77

Table X-A-8

Varimax-Rotated Principal Components Loadings on Internal Factors: "Friend Academics" and "Friend Popular"

Variable	Friend Academics [Internal]	Friend Popular [Internal]
Think of the student you are most friendly with at AHS. As far as you know, are the following true or false for him or her?		
Gets good grades	.76	.01
Is interested in school	.72	.09
Attends class regularly	.69	.10
Plans to go to college	.59	-.08
Is popular with others	.04	.99

Appendix X-B

Derivation of Scale Scores

For several of the analyses, there was insufficient N when using the factor scores described in Appendix X-A. This is because for a factor score to be generated, all the variables in that analysis had to be present. By using, instead, the mean of the items loading above .50 on a factor, and allowing the mean to be computed if all but one of those variables were present (but at least two), we were able to greatly increase the available N. Tables X-B-1 to X-B-3 present scale reliabilities (Cronbach's α) for all the scales in the study, along with the minimum α if any one item is missing. One scale, "academic image," (see Table X-B-2) was considered unreliable and was not used.

Table X-B-1

Scale Reliabilities for External Factor Scales

Scale	Variables*	Cronbach's α	Minimum α With 1 Item Deleted
Discipline	Refusal to obey policy Disrespect for teachers Disrespect for students Lateness Cutting Class Violence	.91	.88
Criminal Activity	Drugs Drinking Weapons Stealing Violence	.90	.87
Empowerment	Have a say in policy Treated like adults Can work at own pace Can change unfair rules Help decide how courses taught Policy is fair	.88	.84
Clarity/ Fairness of Policy	Know what happens if break rules Punish all students the same All know school policy Policy is Fair	.72	.62
Alienation	Students don't trust each other Teachers don't trust students Students don't trust teachers Students who get good grades are not popular	.70	.60
Academic Support	School work is usually hard Get discouraged with school work	.58	N/A
Group Learning	Learn in small groups Teacher helps learn how to work in groups	.86	N/A
Promotive Interdependence	Others feel let down if you fail Students have to help each other to get good grade	.49	N/A
Victimization Exists	Students bring weapons Racial or ethnic put-downs Students damage school property	.76	.66

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*See tables in Appendix A for full questions and scoring directions.

Table X-B-2

Scale Reliabilities for Internal Factor Scales

Scale	Variables	Cronbach's α	Minimum α With 1 Item Deleted
Social Image	See you popular See you socially active See you important See you part of leading crowd See you athletic	.79	.72
Academic Image	See you good student See you troublemaker	.30	N/A
Liking for School and Learning	Feel excited about learning I like school Important I do well in school	.74	.61
Individual Victimization	Mugged for jewelry Physically attacked Pressured to have sex Received sexual attention Afraid someone would hurt me Things stolen from locker Offended by name calling Had things damaged by revenge Was insulted	.89	.88
Friend Academics	Friend gets good grades Friend interested in school Friend attends class regularly Friend plans to go to college	.64	.52

Table X-B-3

Scale Reliabilities for Classroom Rating Factor Scales

Scale	Variables	Cronbach's α	Minimum α With 1 Item Deleted
Class Liking/ Learning	Like this class Feel confident will do well Teacher cares about me Teacher is good Deserve grades I get Don't learn in this class	.83	.77
Class Cooperative	Don't care if learn Nervous in this class Don't learn in this class To do well must win out Working with others is a waste of time Hard to find students willing to help Students likely to put each other down	.78	.73
Class Student Social Climate	Others care about my feelings Students really listen to each other Have good friends in this class	.63	.46

Chapter XI: Cooperative Learning, Self-concept, and Achievement*

Introduction

There is substantial evidence that cooperative learning significantly enhances academic achievement when compared with students' learning in individualistic and competitive situations (Johnson & Johnson, 1989). It remains unclear, however, how this effect is achieved (Knight & Bohlmeyer, 1990). Results from research in several areas of social psychology suggest that the effect of cooperative learning groups on students' identity and, subsequently, their educational goals may explain their enhanced academic achievement.

The study reported in this chapter investigates whether cooperative learning is related to students' academic self-concept and whether the students' self-concept is related to students' educational goals. Furthermore, it investigates whether academic self-concept and academic goals mediate the relationship between cooperative learning and academic achievement. It is postulated that cooperative learning groups will lead students to identify with the learning group and that this identity affects academic self-concept and individual goals. That is, students' identity as academic achievers motivates them to achieve academic goals. Also, if students are motivated to achieve academic goals, information that is relevant to their achieving these goals should be readily assimilated and should contribute to their enhanced academic achievement.

The relationships hypothesized among cooperative learning, self-concept, student goals, and academic achievement are testable through path analysis, as suggested by Knight and Bohlmeyer (1990). It is predicted, in this analysis, that the degree of involvement in cooperative learning groups will be significantly related to students' self-report of their academic self-concept. Also, it is predicted that academic self-concept will be related to students' self-report of their educational goals. Additionally, it is predicted that the mediating variables -- academic self-concept and educational goals -- will be related to academic achievement. Finally, when the variance from the mediating variables is accounted for, cooperative learning will not be significantly related to academic achievement. The outcome of this analysis is reported below.

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* This chapter was prepared by Robin Lynch.

Methodology

Path analysis was used to determine the degree of association among the variables described above. Its use is recommended in the testing of complex models (Pedhazur, 1972) and in models in which the direction of the causal relationship is determined theoretically. The method for assessing the relationships hypothesized in the model is described below.

Subjects

Subjects were 98 students from an inner city Alternative High School (AHS) whose teachers had participated in cooperative learning workshops and were introducing the intervention in their classrooms. A breakdown of the sample by gender and ethnicity is provided in Table XI-1.

Measurement Instruments

Students' exposure to cooperative learning. Students' "exposure" to cooperative learning was derived from the combination of the trainers' rating of the teachers according to their degree of expertise in cooperative learning and the time each student spent with each teacher. Specifically, the cooperative learning trainers at Campuses B and C were asked to rank teachers according to their "facility and expertise" with cooperative learning. The trainers' rankings were standardized and the sum of these scores was calculated for each teacher for the last three teaching cycles during which the intervention was introduced. Students' "exposure" scores were then able to be computed based on the class time spent with each teacher and the teacher's ranking.

Academic self-concept. A variable for students' academic self-concept was determined by a factor analysis of students' responses to questions on the student questionnaire related to their academic self-concept. These consisted of ten items answered on either four or five point scales.

These items are included in Table XI-2. Factor I of this analysis revealed loadings of .40 or better for items that measured the degree to which students "get excited" about learning. Factor II revealed the students' evaluation of their academic ability and their need to do well in school work. The two items weighted most heavily on this factor were used for this analysis since these were thought to capture the concept of academic self-concept. These items asked the students to evaluate themselves on the degree to which they believed others saw them as a good student and on whether they viewed themselves as being able to get good grades. Items were coded so that a higher score represented more of the construct. The sum of the two items comprised each student's score on this construct. The factor loadings for these items are shown in Table XI-2.

Academic goals. A measure of the students' academic goals was also created by a factor analysis of students' responses to items on the questionnaire related to academic goals. These consisted of eight items answered on six, five, and four point scales. The analysis of the items in this category showed two underlying factors: Factor III -- students' concern with future job position and performance after graduation -- and Factor IV -- students' concern with their academic performance. Items that loaded on Factor III were used to create the student goals variable because these are theoretically consistent with the ideas being tested in the model. Scale items were, again, coded so that a higher score represented more of the construct. The sum of the four items weighted most heavily on Factor III comprised each student's score on this construct. The factor loadings for these items are shown in Table XI-3.

Academic achievement. Academic achievement was measured by the students' scores on the Regents Competency Tests (RCTs). The average of the students' scores on the math, reading, history, science, and global studies portions of the RCTs was used to assess academic achievement in this analysis.

Results

Descriptive Statistics and Scale Reliabilities

Table XI-3 documents the observed scores and the means, median, and standard deviation for the measures used in this study. The range of scores was narrow and the standard deviations were smaller than desired for this analysis. Internal consistency was estimated using Cronbach's coefficient alpha. Reliability for each of the scales as reflected by the entire sample as well as various subsamples is reported in Table XI-4. The Cronbach alpha indicated the scales were consistent for the total population and across ethnic and gender subgroups.

Causal Relationships Among Variables in the Model

The estimates for path analysis are determined by regression analysis that generates for each hypothesized link in the model a coefficient that represents the quantitative measure of the improvement in the model as a result of its inclusion. Each endogenous variable is then regressed on the variables preceding it (see Figure XI-1). The calculations for determining the association between variables are represented in Table XI-4.

The results of this analysis are contained in Table XI-5 and in Figure XI-2. The implications of these results will be discussed below in terms of the specific relationships hypothesized by the model.

Impact of cooperative learning on students' self-concept. It was hypothesized that the student's adoption of the group's academic goals would cause students to internalize a sense of themselves as academic achievers. To test this proposal, student self-concept was regressed on student exposure to cooperative learning. The analysis supported this proposition. The variance in student self-concept explained by the exogenous variable was significant.

Impact of student self-concept on student goals. It was hypothesized by the model that student self-concept would be positively related to student academic goals. This proposition was tested by regressing student goals on student self-concept. Student self-concept, as expected, predicted a significant amount of the variance in student goals.

Impact of student self-concept on academic achievement. The model predicted that student self-concept would be associated with student academic achievement. To test this proposal, academic achievement was regressed on student self-concept. Student self-concept, as hypothesized, predicted a significant amount of the variance in academic achievement.

Impact of student academic goals on academic achievement. The model predicted a connection between student academic goals and academic achievement. Academic achievement was regressed on student academic goals and revealed a statistically significant relationship. Again, there was evidence supporting the assumption that students with higher academic goals tended to do better on the RCTs.

Impact of cooperative learning on academic achievement. It was hypothesized that cooperative learning would not be related to academic achievement when the mediating variables student self-concept and student academic goals were controlled for. The analysis supported this proposition. The significant relation between cooperative learning and academic achievement was reduced to zero when the mediating variables were accounted for.

Adequacy of the Model

The adequacy of the model was assessed by performing a goodness of fit test. In this test a ratio between the squared multiple correlation for the observed relationships and the squared multiple correlation obtained through path analysis is determined. The results may range form zero to one, with one representing a better fit of the model. The ratio obtained was .59, indicating satisfactory support for the model. The procedure and the results for this analysis are reported in Table XI-6.

The final model used only three variables to predict academic achievement. Given the complexity of academic achievement, this would indicate the need for additional support for the independent variables to be included in future studies. While the results reported here support the predicted results, there is not sufficient evidence these would be replicated with another population.

Discussion

The hypothesized relationships are supported by the data. However, in order for the model to account for the many influences affecting student behavior, other variables need to be included. Factors in the social context and in individual differences, for example, suggest rival hypotheses. Also, teachers who used cooperative learning more skillfully and more readily than others may be better teachers generally. That is, more skillful teachers may customarily produce students who have a sense of themselves as academic achievers with high academic standards. To test this alternative hypothesis, teachers' expertise in the use of cooperative learning, as determined by the trainers, was correlated first with "years of teaching" and second with the degree to which teachers were "burned out," as determined by the Maslach Burnout Inventory. Although neither of these correlations was statistically significant, these variables may not adequately measure quality of teaching.

Should, however, the relationships between cooperative learning, student self-concept, academic goals, and academic achievement be causally related, then these findings may contribute to our understanding of social factors that affect academic achievement. For this reason it seems reasonable to suggest that further investigations of these relationships be conducted to see whether the results are replicable.

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Table XI-1

Factor Analysis

Academic Self-concept Scale

Item loadings	Factor I	Factor II
I feel excited about learning.	.91028	.21833
How strongly do you agree with the statement "I like school."	.7400	.01026
It is important for me to do well in my school work	.70960	.12030
How important is it for you to get good grades?	.19149	.10062
How do you rate yourself at getting good grades?	.15603	.81830*
How do others see you as a student?	.16019	.73824*
I get discouraged with school work.	.30862	-.54522
How important is what other teachers think of you?	.06678	.44030
How important is getting job training and experience?	.18532	.03192
How do others see you . . . as a troublemaker?	.00950	.01298

All items were scored so that the higher the score the more of the construct it represented.

Factor I: Students' excitement about learning.

Factor II: Students' academic self-concept.

* = items used to create scale

Table XI-1 (continued)

Student Academic Goals Scale

Item loadings	Factor III	Factor IV
What is your best guess as to the chances that you will apply to college?	.82850*	.11430
How much education do you think you will eventually have?	.77728*	.09171
What are your plans after leaving Satellite?	.71688*	.10671
How important is it for you to continue your education?	.54365*	.54052
What is your best guess that you will drop out of high school temporarily?	.36155	.66597
What is your best guess that you will drop out of high school permanently?	.11405	.71290
How important is getting good grades to you?	.01979	.65999
Do you expect to graduate from Satellite Academy with a diploma?	.10859	.45073

All items were scored so that the higher the score the more of the construct it represented.

Factor III: Students' concern with future.

Factor IV: Students' concern with their academic performance.

* = items used to create scale

Table XI-2

Descriptive Statistics for Study Measures and Range of Possible Scores

Scale	Possible Scores	Observed Scores	Scale Midpoint	Mean	SD
SCHSELF	1-6	2-4	3.5	3.23	.624

How do others see you as a student?
How do you rate yourself at getting good grades?

Scale	Possible Scores	Observed Scores	Scale Midpoint	Mean	SD
GSCALN	1-6	2-5.25	4.0	3.81	.76

What is your best chance that you will apply to college?
How much education do you think you will eventually have?
What are your plans after leaving Satellite?
How important is it for you to continue your education?

Note:

Schself: Students' perception of self as student

Gscaln: Students' academic goals

Table XI-3

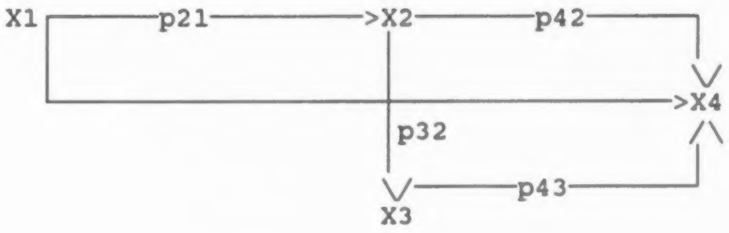
Scale Reliabilities for Total Sample and for Sample Subgroup

	Total	M	F	H	AA	HM	AM	HF	AF
SCHSELF	.64	.65	.62	.62	.69	.69	.66	.51	.72
GSCALN	.67	.66	.64	.81	.57	.82	.50	.75	.58

Males (M)	N=48
Female (F)	N=64
Hispanic (H)	N=37
Afro-Americans (AA)	N=59
Male Hispanics (MH)	N=16
Female Hispanics (FH)	N=21
Male Afro-Americans (MA)	N=27
Female Afro-Americans (FA)	N=32

Table XI-4

Structural Equations



$$X_2 = p_{21}X_1 + e_2R_2$$

$$X_3 = p_{32}X_2 + e_3r_3$$

$$X_4 = p_{43}X_3 + p_{42}X_2 + p_{41}X_1 + e_4r_4$$

X1: exposure to cooperative learning

X2: students' academic self-concept

X3: students' academic goals

x4: academic achievement

Table XI-5

Individualized Structural Equations for Predictions of Cooperative Learning on Student's Educational Goals, Academic self-concept and Academic Achievement

Independent/ Dependent Variables	R	R2	F	B	t	sig t
Expose/ Schself	.316	.10	10.68	.316	3.3	.0015
Schself/ Gscaln	.40	.16	24.51	.403	4.9	.0000
Schself	.45	.20	7.49	.325	2.5	.01
Gscaln	.40	.16	11.26	.403	3.3	.0014
Expose/ RCT	.46	.22	5.25	.115	.916	.36

Expose:	exposure to cooperative learning
Schself:	perception of self as student
Gscaln:	academic goals
RCT:	Regency Competency Test

Table XI-6

Goodness of Fit Test

R^2m	Generalized Squared Multiple Correlation for fully recursive model with all the variables linked (ratio of the explained variance to be explained.
M	Equivalent of R^2m for an overidentified model.
df	Equal to the number of overidentified restrictions.
Q	Goodness of fit (value between 0 and 1; if closer to 1 the better the fit.)

$$R^2m = 1 - (1-R_1{}^2)^2 \, (1-R_2{}^2)^2 \quad . \; . \; . \; . \; . \quad (1-R_p{}^2)^2$$

$$R^2m = 1 - (.89985) \, (.70156) \, (.83735) \, (.7919) \, (.78021)$$

$$\begin{aligned} M = \quad & 1 - (1-R_1{}^2)^2 \, (1-R_2{}^2)^2 \quad . \; . \; . \; . \; . \; (1-R_p{}^2)^2 \\ & \qquad (.70156) \, (.83735) \, (.7919) \, (.78021) \end{aligned}$$

$$Q = \frac{1 - R^2m}{1 - M} \qquad \frac{1 - .67339}{.63704} \quad = \quad .51$$

Figure XI-1

CAUSAL MODEL

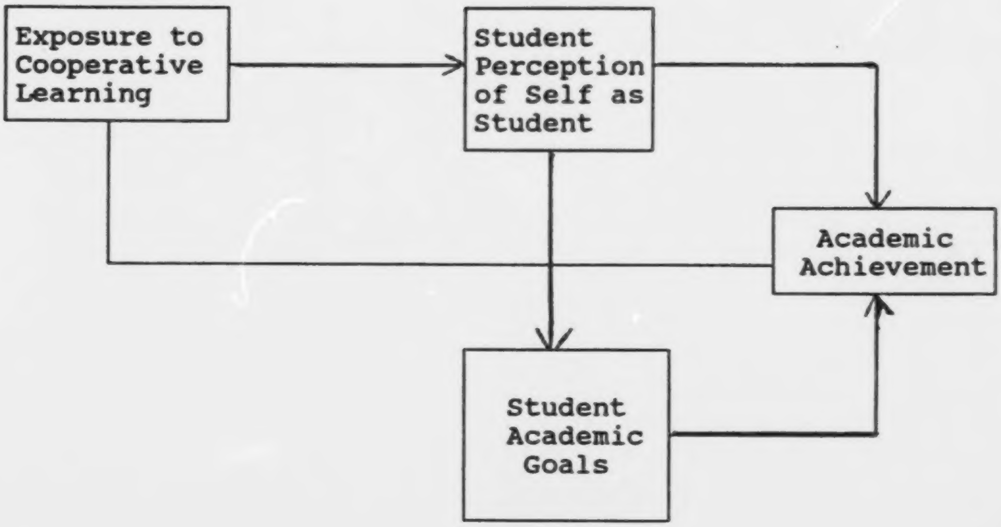
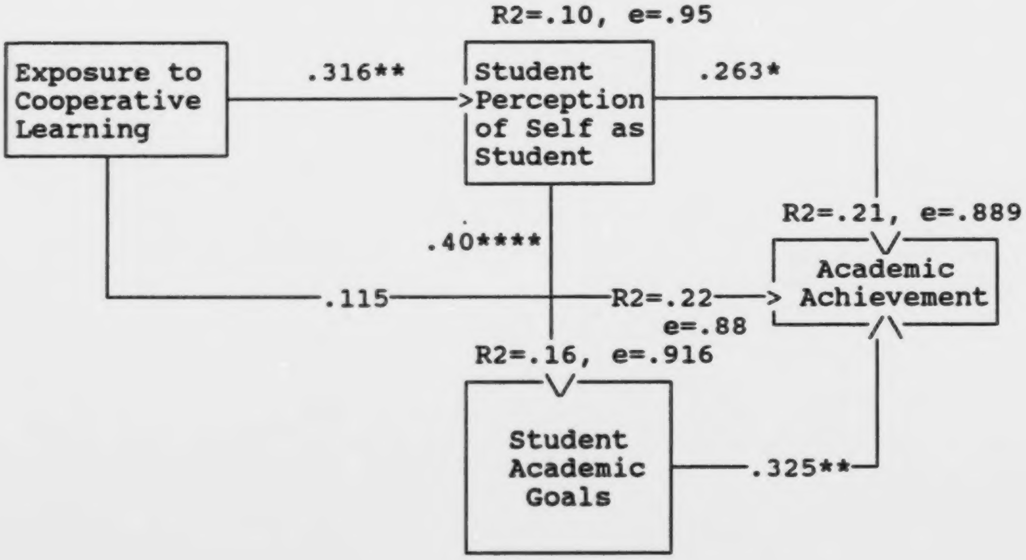

Exposure to Cooperative Learning
Student Perception of Self as Student
Academic Achievement
Student Academic Goals

Figure XI-2

CAUSAL MODEL


R2=.10, e=.95
Exposure to Cooperative Learning
.316**
Student Perception of Self as Student
.263*
R2=.21, e=.889
.40****
Academic Achievement
.115
R2=.22
e=.88
R2=.16, e=.916
Student Academic Goals
.325**

Chapter XII: The Effects of the Trainings:

A Summary of the Quantitative Results*

Although the results of our study are consistent with prior theoretical work and research (see Chapter II), we were nevertheless pleasantly surprised by them. In earlier chapters we have described difficulties we had in implementing our training interventions in an ideal manner and also in collecting the data we wanted. These problems led us to be somewhat pessimistic about the possibility of drawing reasonably clear conclusions from our research. However, despite the "noise" created by the problems that we experienced, it is evident that a consistent pattern of findings emerged from the statistical analyses presented in Chapters VII through XI. In this chapter, we shall present a summary of these findings and the conclusions that we draw from them. We shall also consider alternative explanations to the ones we posit.

In presenting our results, we do not claim for them the solidity and generality that a well conducted experiment would permit. When significant results are obtained, a true experiment -- by its inherent design -- would *a priori* eliminate many alternative explanations to the hypotheses being tested. In our study, plausible alternative explanations of our findings can only be eliminated *ex post facto.*[1] Nevertheless, because the findings are internally coherent, as well as consistent with prior theorizing and research, we present them with confidence and with the sense that the problems in our research and in the implementation of training have weakened rather than exaggerated them.

In the following pages we summarize the results presented in preceding chapters and offer our conclusions about the effects of our training on the students at Alternative High School.

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* This chapter was prepared by Morton Deutsch.

[1] A true experiment would have required random assignment of teachers and students to each site, random assignment of each site to one of the three training interventions or a control ("no training") group, and at least ten sites for each training intervention or control group. A true experiment would not have been possible, financially or administratively, with the resources available to us.

Zhang's Study.

Zhang's LISREL analyses present an overview of our main results and a test of the theoretical model underlying our expectations about the effects of the training in cooperative learning and conflict resolution. In brief, we assumed that both types of training would lead to an improvement in the social skills that would facilitate constructive conflict resolution and effective working together with others; we further assumed that training in constructive conflict resolution would particularly enhance the former set of skills while training in cooperative learning would particularly improve the latter type of skills. Next, we posited that an improvement in managing conflict and working together with others would have a positive impact on the students' relations with others which would be reflected in their receiving greater social support from others and being less victimized by others. The increased positiveness of the student's social environment toward him/her would, in turn, lead to greater self-esteem as well as more frequent positive mental states (e.g., "cheerfulness," "life is interesting") and less frequent negative mental states (e.g., "upset," "tense," "depressed"). As the student's self-esteem increased and the social environment became more positive in its responsiveness to him/her, we expected that the student would feel a greater sense of control over what happened to him/her (internal locus of control). Since prior research has demonstrated a strong relationship between academic achievement and locus of control, we also assumed that an increased sense of control over one's fate would lead to greater academic achievement.

Taken together, Zhang's various LISREL analyses provide considerable support for our initial theoretical model except that there is evidence that the cooperative learning training at Campus C did not have as much of an impact as the training did at the other two campuses.

The support for the theoretical model is indicated in the larger structural model with social support and the model with school crime and victimization combined with the five submodels. It should be noted that the two larger models containing more factors are based on fewer students than the five submodels and, hence, some of the relationships which are statistically significant in the submodels are not in the larger models due to the fewer cases. It is evident that the variable sometimes labelled "conflict" and sometimes labelled "conflict resolution" (i.e., improvement in management of one's conflicts) increases "social support" and decreases "victimization" as postulated and these indicators of a more favorable social environment are causally related to improvement in the various measures of the students' psychological traits and states (self-esteem, locus of control, positive and negative mental states) contained in the model. Beyond the expected relationship between locus of control and academic achievement, it appears that academic achievement also improves with an improvement in the student's positive mental state.

The factor labelled "group" (or "effective groupworking"), which partially overlaps "conflict resolution" (and is correlated with it at all three sites), lacks the causal connections obtained with "conflict resolution." We suspect that one of the reasons for this lack of result is that the group process skills were taught by few, if any, of the teachers employing cooperative learning at Campus C and not by all of the teachers at Campus B. Group process skills are an important component of the skills involved in working together effectively in groups, although such skills are not central in constructive conflict resolution training. The cooperative learning groups were, however, taught skills that are important in both conflict resolution and effective group functioning -- e.g., active listening, effective communication, perspective-taking -- even though they did not get the systematic training in such matters as violence prevention, anger control, and "positions" versus "interests" that were included in the conflict resolution training.

The foregoing suggests that the "group process" skills, which were likely to be more strongly reflected in the "group" than the "conflict resolution" factor, would be found more in Campus B, where more of the teachers gave training in these skills as part of their cooperative learning classes, than in Campus C, and least in Campus A, which did not receive training in cooperative learning. It would also suggest that the "conflict" factor would be strongest in Campus A, which received the most conflict resolution training, and least strong in Campus C, where no specific training in conflict resolution was given. This factor reflected common skills that were developed in both types of training but also unique skills that came specifically from the conflict resolution training.

The mean factor profiles for the three campuses on "conflict" and "group" are completely consistent with the different training interventions at the three campuses. The parallel between the results for these "factor" measures, which are derived from student questionnaires, and the actual nature of the training interventions at the three campuses provides evidence of the effectiveness of the interventions.

Thus, Zhang's analyses provide support for our assumption that improvement in the students' management of their conflicts with others, resulting from our training, would produce improvement in their social relations (increased social support from others and decreased victimization by others), which in turn would lead to greater self-esteem, lesser anxiety and depression, more positive mental states, increased sense of control over one's fate, and higher academic performance. Similar results were not obtained with regard to the training aimed at improving the students' skills in working together in groups. We believe that the lack of effects of the "group" factor was due to two reasons. First, there was relatively little training of the students in group process by the teachers employing cooperative learning in their classrooms, and this was especially true at Campus C. Also, the "group" factor was not a reliable measure of this component of cooperative learning training; it was based on only two items, hence, even if the students had been systematically trained in effective working together in groups, we would not have measured it reliably.

An alternative explanation for the results from Zhang's analyses that could be offered is that the findings simply reflect a positivity bias such that the kind of student who would report an improvement in the way he/she manages conflicts is also the kind of student who would report more social support, higher self-esteem, better psychological states, etc. This alternative explanation, however, would not lead one to expect that the factor profiles of the three sites would parallel the training at each of the sites nor would it explain the academic achievement findings. Academic achievement was measured by regents' test scores, not by student questionnaires. In addition, the analyses of the effects of the amount of student exposure to the training, reported in several of the other chapters, are inconsistent with a "positivity" explanation. Further evidence against this explanation is provided by the data obtained from ratings of the students by their work supervisors and by their teachers which indicate significant correlations between the measures obtained from the students and those obtained from others who where rating the students.

Khattri's results

Khattri's analyses of the teacher questionnaires indicate that most of the teachers had some training by our trainers in the cooperative learning and conflict resolution interventions introduced at their campus and a considerable majority of these teachers employed them in their classrooms. The teachers gave moderately positive endorsements of each training intervention toward the end of the second year of our interventions when a majority of the teachers did not yet feel fully skilled in implementing cooperative learning or conflict resolution. After a third year of training, we would have expected them to feel more skilled and even more positive about our interventions.

In interviews conducted with a random sample of students at the end of the first academic year of training, all the students in Campuses A and B indicated that they had been in conflict resolution classes and a majority indicated that what they learned had been useful to them at home, at school, and at their jobs. At Campus C, all students indicated that they had been in cooperative learning classes. Most of the students had favorable reactions to these classes. The most frequent negative reaction, by a significant minority, was that not everyone did their full share of the group's work.

Similarly, in questionnaires administered at the end of the second year, almost all of the students in Campus A reported being exposed to one or more elements of conflict resolution in their classes; in Campuses B and C, they reported this in relation to cooperative learning. A substantial majority in all three campuses also reported their training to be useful to them.

Of particular interest are Khattri's analyses of the students' self-report on the posttest questionnaires of improvement in social skills (what she terms "social interaction/working together in groups"), handling conflicts or arguments, and the lessening of physical fights. On all three campuses, students report some to much improvement on each measure. However, there is a significantly greater lessening of violence reported at Campus A than at Campus C; Campus A received the most training in conflict resolution, Campus C received none.

Khattri's multiple regression analyses indicate that the amount of exposure that the student had to the training is significantly related to the amount of improvement that a student reported in his/her social skills, handling of conflict, or the lessening of physical fights depending upon the campus being analyzed. Two crude indicators of exposure were employed: a subjective one, derived from the student's self-report, and an objective one, derived from the student's class schedule combined with the teachers' report of frequency of use of training in their classes. At Campus B, the objective measure of training exposure to cooperative learning, but not the subjective measure, predicts significant improvement on all three measures. At Campus C, the subjective measure predicts significant improvement on all three variables, while the objective measure of training exposure to cooperative learning predicts significant worsening of social skills. At Campus A, both measures of exposure to conflict resolution training predict improvement in social skills, while only the subjective measure predicts improvement in handling of conflicts, and neither predicts the lessening of physical fights. This lack of results for physical fights is a statistical artifact resulting from the fact that most of the students at Campus A report a lessening of physical fights; hence, there is insufficient variance among the students on "lessening of physical fights" to permit a significant relation to emerge.

To sum up Khattri's results, it can be said that the "consumer satisfaction" with our interventions is favorable. The teachers were moderately positive in assessing the effects of the interventions on the students even though a majority did not yet feel skilled in implementing the training in their classrooms. The students, in interviews as well as on questionnaires, reported they used the training, found it useful to them, and had improved in their interpersonal skills as well as in managing their conflicts. The objective measure, as well as the subjective measure, of student exposure was significantly and positively related to various measures of student self-reported improvement at the different campuses. We note that Dolezal's (1991) dissertation also found a significant relation between an objective measure of training exposure and an "interpersonal improvement" scale (which included all of the items used by Khattri). These positive relations between exposure and improvement provide further support to the prior conclusions drawn from Zhang's analyses.

Tepavac's study

Tepavac's research is concerned with the vocational readiness of students and how the training affected the various measures related to it. Although her research focuses on a different set of dependent variables, the theoretical model underlying her hypotheses is the same as that underlying Zhang's analyses with the addition of two moderating variables: systematic/planned problem-solving and avoidant/ineffective problem-solving. Since LISREL analyses were impossible to perform because of the small number of cases on some of the relevant measures, Tepavac's analyses employ the more commonly used statistical procedures -- Chi-square, correlations, and multiple regressions.

To see whether a consistent picture would emerge, Tepavac performed a variety of interrelated analyses of the data with which she was concerned: Chi-square analyses of the relations between the various vocational measures (sources of information about work, work-related values, and knowledge about work) and the different psychological variables, correlations between employer as well as teacher ratings of students and the vocational measures, correlations between the employer and teacher ratings and the different psychological variables, correlations between the employer and teacher ratings of students, pre-post comparisons, correlations between the vocational measures and the students' exposure to training, correlations between the vocational measures and the psychological measures which showed improvement as a function of the training, correlations between change scores on the vocational measures and the various psychological variables, and regression analyses of the effects of certain variables (including subjective exposure measures) on different vocational measures.

From the different, cross-cutting analyses a reasonably coherent picture emerges which is consistent with our theoretical model. Posttest vocational readiness measures were positively correlated with the psychological and mental health variables for which a favorable change due to training was detected in Zhang's LISREL analyses. Thus, more favorable posttest work readiness scores were associated with greater social support, higher self-esteem, more internal locus of control, less anxiety and depression, and more well-being as well as with more systematic and less avoidant problem-solving. Similar patterns of relationships were obtained between pre-post change scores in work readiness and the foregoing psychological variables. Subjective measures of exposure to conflict resolution and cooperative learning significantly correlate, positively, with various work-readiness measures. In addition, the multiple regression analyses indicate that objective measures of exposure to cooperative learning are significant predictors of favorableness of several work-readiness measures.

Tepavac's study also reports analyses which indicate significant relations among three sets of data: the student questionnaires, the employers' ratings of students, and the teachers' ratings of students. There are some interesting contrasts in the ratings of the students by the employers and teachers. The employers gave a more favorable rating to students who valued job security and a less favorable rating to those who valued work success; teachers, on the other hand, gave students who valued job autonomy and work success more positive ratings. Employers also gave less favorable ratings to students who had more sense of control over their own fate and who had more systematic orientations to solving problems. In contrast, teachers were more favorable to students with greater internal locus of control and not negatively disposed toward those who were systematic in their orientation to problems. These differences suggest that employers preferred compliant, non-ambitious employees for their relatively routine, non-skilled work situations while the teachers preferred students in their classes who were more autonomous, inner-directed, and achievement-oriented. However, both the teachers and employers had negative evaluations of students whose questionnaire indicated that they were avoidant or ineffective in handling problems and conflicts. Also, the more depressed a student was considered to be by the teacher, the less adaptable at work the employer considered him/her to be.

Some other interesting findings are reported by Tepavac. Students who plan to go to college after leaving Alternative High School, compared with those who plan to get a job, report having better physical health, more positive mental states, more internal locus of control, and more tendency to confront problems or conflicts. Students who describe their current job as a place where people "goof off," compared with those who do not, have less internal locus of control and more tendency to avoid problems. Those students who indicate they work "just for money," as compared with those who do not, are more concerned about working conditions and work success but are more ineffective in confronting problems and less favorably rated in appearance by their employers. Those students who describe work as more enjoyable than school are more systematic in their problem-solving and get more favorable ratings of their appearance by employers than students who do not enjoy work more than school. Students who think that their job encourages good work habits and skills, compared with those who do not, have more positive scores on our problem-solving, locus of control, and mental health measures. Those students who indicate that their job interferes with their school work are lower in physical and mental health than those who indicate no interference.

We interpret the findings summarized in the preceding paragraph as suggesting a bi-directional causal relation between the student's situation at work and his/her psychological state. If the student's job situation is poor -- people "goof off" and work "just for money," they learn little at work and it interferes with their school work -- it will have adverse effects on his/her psychological state. On the other hand, if the student's psychological state is poor -- he/she avoids confronting problems, has little sense of control over his/her fate, is anxious and depressed -- then he/she is apt to have a negative view of his/her work situation and obtain little benefit from it.

Weitzman's study

Weitzman's analyses indicate that the students at Alternative High School have a more favorable view of it than of their prior high school. Their perceptions of the school's climate as well as their reports of their own individual school experience are much more positive at AHS. They think that at AHS there are fewer disciplinary problems, less victimization, and less criminal activity among students; students have more opportunity to participate in school policy-making and to control their own work; more group learning occurs; and academic standards are not so difficult nor so discouraging. In terms of their own experiences, they feel that they are less popular, but have a more favorable academic image.

The above results may, in part, reflect the possibility that students would be apt to have a relatively negative attitude toward their prior school since they had either dropped out of it or had been expelled. However, it seems reasonable to assume that the relatively favorable student views of AHS result primarily from the very supportive climate that the staff and teachers of AHS have deliberately set out to create for their students. They have apparently succeeded in creating a school climate which is more problem-free than the students experienced in their prior schools and also more academically supportive.

It is relevant to ask whether the positive findings about the effects of our training interventions can be attributed to the effects of the favorable school climate at AHS rather than to the training. Our data clearly indicate that the student changes, which we attribute to the effects of the training, can not be explained by student exposure to the more favorable school climate of AHS. In June, 1988, we administered questionnaires to 350 students who were in attendance at AHS for at least a year and in September, 1988, we administered similar questionnaires to 291 entering students. In both instances the students had not yet been exposed to any training in cooperative learning or conflict resolution. Presumably, if the favorable school climate at AHS was the causal factor leading to student improvement on the psychological variables with which we have been concerned, then the students who had been in attendance at AHS would have had more positive scores than the entering students. This is not the case: there are no statistically significant differences favoring the students who had already attended AHS on self-esteem, locus of control, or any of the mental health variables; in fact, the slight (non-significant) differences favor the entering students. We note that this lack of statistically significant differences also speaks against the notion that the "maturation" of the students provides a reasonable alternative explanation of our findings. The students who were attending AHS in June, 1988, were older (average age = 18.3 years) than those who entered in September, 1988 (average age = 17.1 years).

The students at the different campuses had similar, positive views of the school climate at AHS; the only differences were that the students at Campus A felt they were more empowered but that the school policies were less clear compared to the students at the other two campuses. Few changes occurred in the students' perceptions of the school climate after the first year of training.

There were also relatively few changes within subjects from the pre- to the post-measurement. The two significant changes are, however, rather interesting. They perceive an increase in the sense of positive interdependence among students ("others feel let down if you fail," "students help one another to get good grades") but they personally experience less excitement about learning and doing well, and like school less. The former result is consistent with our expectations and training, but the latter is surprising. We have no definitive explanation but speculate that, in their pre-measurement, the ratings of liking school and learning at AHS were inflated by their comparison of AHS to their prior school and that by the time of the post-measurement their former school was not being used as a basis of comparison.

Weitzman's regression analysis of the relationships between measures of the students' exposure to training in conflict resolution or cooperative learning and their ratings of school climate as well as their ratings of one of their classes, at each of the three campuses, generally show positive but not consistently significant results. These results suggest that the more exposure the students had to the training, the more positive was their view of the school's classroom climate -- including their liking of school and learning -- at the end of our study. However, at Campus C there was an exception to these positive findings. Here, there was a slight (non-significant) tendency for a negative relationship to exist between student exposure to cooperative learning and ratings of school climate for those students who had taken the post-questionnaire twice (and thus had been at Campus C the longest).

To sum up, Weitzman's study provides evidence that the students regarded the school climate at AHS much more favorably than that of their prior high schools. This relatively positive view of AHS by its students continued largely unchanged throughout the course of our study. It seems reasonable to suggest that the positive school climate at AHS was conducive to the acceptance of our training and facilitated its effectiveness. However, our statistical analyses clearly indicate that the relatively favorable school climate at AHS does not account for nor explain away the positive effects on the psychological variables that we attribute to our training.

We do note one dark cloud in the students' sunny view of AHS. Although they consider the academic standards at AHS to be more supportive than at their former schools, there is a significant decrease in their enthusiasm for school learning during their stay at AHS (which is ameliorated by greater exposure to training in conflict resolution or cooperative learning).

Lynch's study

Lynch is concerned with understanding in greater detail the processes by which exposure to cooperative learning affects academic achievement. She assumes that the more a student is exposed to high quality cooperative learning the more favorable would be the student's self-image as a student. This would be largely due to the support he or she receives from the group for doing good academic work. Her causal model then predicts that an improvement in academic self-image would lead to an improvement in academic performance directly, and also indirectly, by enhancing the student's academic goals. Higher academic goals would be another influence leading to higher academic achievement. Her statistical analyses, as reflected in her path model, support her predictions.

In Lynch's analyses, student "exposure" to cooperative learning was derived from the combination of the trainers' rankings of the teachers in Campuses B and C according to their "facility and expertise" in cooperative learning and the amount of time each student was scheduled to spend with each teacher. This measure of exposure differs from the one employed by Tepavac and Khattri in that it is based upon an assessment of the quality of the teachers' implementation of cooperative learning in the classroom rather than upon the teachers' self-report of the frequency of its implementation. It is, of course, possible that the "better" teachers implement cooperative learning both more often and more effectively and that such teachers have a more favorable impact on the students' academic self-image. Unfortunately, we had no way of assessing the general quality of the teaching of individual teachers at Alternative High School.

Although Lynch's results are open to alternative explanation, they are congruent with the other results in our study which reveal the positive impact of cooperative learning on students' learning. However, it is evident that Lynch has not attempted to present a full causal picture of the factors influencing academic performance. Her causal model does not include variables which Zhang's LISREL analyses have shown to be directly related to academic performance -- i.e., "locus of control" and "positive mental state." It does not claim to be a full account of the measures in our study which would account for academic achievement. It focuses on a key variable, academic self-concept, and how it is affected by cooperative learning and how it, in turn, affects academic performance, directly and indirectly.

Over-all summary

Problems in implementing the training and in conducting the research as we had originally planned led us to be somewhat pessimistic about the possibility of drawing reasonably clear conclusions from our study. These difficulties included curtailment of funds which reduced the amount of training of the teachers, the high dropout and transfer rates of students, their high rate of absenteeism and tardiness, and the inability to find a suitable control campus to participate in our study. However, despite the "noise" created by the problems we experienced, a consistent pattern of findings emerged from the statistical analyses of our quantitative data. Our qualitative data are in accord with these findings.

The results of our study are congruent with our theoretical model and with prior theorizing and research on cooperative learning and conflict resolution. The LISREL analyses of the data provide the clearest support of our model. From these analyses, it is evident that as students improve in managing their conflicts, they experience increased social support and less victimization from others. These indicators of a more personally favorable social environment are causally related to improvement in the various measures of the students' psychological traits and states (self-esteem, locus of control, positive and negative mental states) contained in the model. Beyond the expected relationship between locus of control and academic achievement, it appears that academic achievement improves with gains in students' positive mental states.

The evidence regarding the effects of our training on the skills related to effective working in groups is less conclusive: we had assumed that the cooperative learning training would be particularly relevant to the acquisition of such skills. However, our qualitative data indicate that this component of cooperative learning was not employed much by the teachers in their implementation of it in their classes, particularly at Campus C. In addition, our measure of this component of cooperative learning training was not reliable.

The data with regard to vocational readiness indicate that its measures were positively correlated with the psychological and mental health variables for which a favorable change due to training was detected in the LISREL analyses. Thus, more favorable posttest work readiness scores were associated with greater social support, higher self-esteem, more internal locus of control, less anxiety and depression, and more social well-being as well as with more systematic and less avoidant problem-solving. These results suggest that our theoretical model of the effects of training in cooperative learning and conflict resolution, described earlier, is applicable to vocational readiness.

Several measures of vocational readiness were related to the assessment of work performance of students by employers and to ratings of students by teachers. These data suggest that employers preferred compliant, non-ambitious students for their relatively routine, non-skilled work situations, whereas the teachers preferred students who were more autonomous, inner-directed, and achievement oriented. However, both the teachers and employers had less favorable evaluations of students who were avoidant or ineffective in handling problems and conflicts.

Our data also indicate that the "consumer satisfaction" with our interventions was favorable. The teachers were moderately positive in assessing the effects of the interventions on the students even though a majority did not yet feel skilled in implementing the training in their classrooms. The students, in interviews as well as on questionnaires, reported they used the training, found it useful to them, and had improved in their interpersonal skills as well as in managing their conflicts. The objective measure, as well as the subjective measure, of student exposure to the training was significantly and positively related to various measures of student self-reported improvement at the different campuses. In interviews with the principal and the coordinators at the three campuses, they report general positive changes at AHS which improved communication and interaction among teachers and students and between them as well.

It is impossible from our study to draw any reliable conclusions about the relative effects of cooperative learning training and conflict resolution training. The three campuses differed not only in the training they received but also in many other ways. Nevertheless, collectively we have the subjective impression that the combined training was most effective.

Plausible alternative explanations for the positive findings of our study were examined and found to be inconsistent with our data. Thus, despite the many problems inherent in our study, as in most field studies of this sort, there are reasonable grounds for supposing that the positive effects we have described were due to the training.

We conclude by stating that our study was conducted under conditions which were considerably more difficult than those under which most prior studies were conducted. The students in our study were more "at-risk," facing more difficult life circumstances, and were also older; the teachers were working in more adverse conditions, more decrepit buildings, and in a more demoralized educational system than in most previous studies. The fact that our training produced positive results under these difficult conditions and that our results are consistent with prior theorizing and research suggests that cooperative learning and conflict resolution training are valuable in a wide range of educational settings.

Chapter XIII: Conclusions and Implications*

Given that educational institutions are often resistant to change, it is understandable that many educational change projects wane at the implementation stage and never become institutionalized. In many instances school staff get immediately enthused when new projects are proposed, then become skeptical as to whether even the most sound project can be effective given their school setting, student population, time constraints, and personal agendas.

Despite the urban setting and the at-risk student population, our training program in conflict resolution and cooperative learning at Alternative High School (AHS) achieved considerable success. The changes that took place in the main variables that we measured are reported in the quantitative portions of this report. Other successful aspects of the project were revealed in interviews with key staff members of AHS. These quotes from the Principal and site coordinators indicate that positive results of the training occurred in major areas of school functioning:

Teacher Empowerment

> The in-class support that the trainers gave. . . working directly with staff in a classroom was the most helpful part of the project. This type of direct contact gave immediate response to the staff. It enabled them to respond concretely to the needs, it empowered them. [All campuses]

Risk Taking

> The training also helped them take risks. It helped people to change their classroom ways and it helped them change their ways with dealing with students. . . our staff development was going on all the time. So the combination of the staff development and your training made people more responsible and more willing to take risks. [All campuses]

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* This chapter was prepared by Vernay Mitchell.

School Norms

All of the students have the reinforcement of knowing that school is a place where we solve our differences. So actually it strengthened the norms of the school. Kids were definitely helped by it. [All campuses]

Interactions Among Staff and Students

There are two levels of effects, one is that the staff has a greater amount of interaction. They are more cooperative. They are thinking more about what is done in the classroom. The second level is the students. For them it was a definite plus. There is more interaction more communication, a release of tension. It is more relaxed since this intervention started. There is no conflict in the classrooms during cooperatively taught classes. Thus less energy is expended by teachers. They can do more observations of what students are doing. [Campus C]

Communications

Cooperative learning has contributed to better communication among students and between staff and students; better communication leads to less conflict. We can't be sure about a change of attitudes with either teachers or students. That's hard to see, but it has changed the affective factors. For example, how much respect the students give and receive, how they treat people. There are fewer incidents of violence among them. When problems are going to occur there is more warning, students come to us and tell us what's brewing. [Campus C]

Administrator Confidence

For me it has given me the ability to handle and negotiate with students and teachers. I really feel more comfortable in my position because of the training. [Campus A]

Curriculum Planning

We are deciding now on a new curriculum. So with the cooperative learning training teachers are better equipped to organize the class. This enables the students then to work better with each other. Students do a lot of collaborative work, they have to plan, organize and then demonstrate their work. [Campus B]

Staff Cohesiveness

> The staff is a tighter group of people. They talk more and they talk better together. [Campus B]

Classroom Organization

> With the cooperative learning training teachers are better equipped to organize the class. This enables the students then to work better with each other. Students do a lot of collaborative work, they have to plan, organize and then demonstrate their work. [Campus B]

Factors Supporting the Implementation of Training

An analysis of the training at these three sites of Alternative High School over a two year period reveals several patterns of behaviors and responses. Some of them were clearly advantageous since when they occurred the training intervention became better accepted, better attended, and more practiced. Other factors form patterns that constituted impediments to our planned intervention. Both supportive and impeding factors are presented below and related to specific actions in our project. This is a summary of those things that, we think, will make a difference to any training program in schools.

The factors that were most important to the success of the training are the following:

1. Effecting an entry to the site that makes the faculty and staff comfortable with the presence of the trainer. This was exemplified by the slow, prudent entry made by the trainer at Campus B during year two and by the work done by the trainer at Campus A to make herself "just like a member of the staff."
2. Adapting the training to the needs and abilities of the target population -- allowing that population to help in the delineation of their needs and abilities. This was exemplified in the way the trainer at Campus A used elements of popular culture, such as the movie Do the Right Thing, to provide a context for exploring the conflict resolution curriculum. It was also exemplified in the

way the trainer at Campus B, during year two, conferred with the staff on the agenda for the training workshops.

3. Becoming engaged at the site, not only in training related activities, but in routines, special events, and teachable moments. This was exemplified by the trainer at Campus A as she became a counselor, confidant, and mediator for teachers and students and by the trainer at Campus B as she proposed a new orientation course and helped to organize it.

4. Remaining flexible in scheduling and planning the training to accommodate unexpected events and situations. This was exemplified in the way the trainer at Campus A made the transition from training teachers to training students and by the way the trainer at Campus C changed her training agenda to include working with the whole school on a production.

5. Arranging meetings where school staff, trainers, and researchers can debate and discuss the training models and, if necessary, recommit themselves to the goals of the project. This was exemplified by the actions of the ICCCR staff in organizing meetings with school staff, preparing a memo to clarify project goals and needs, and attending meetings of the management team.

6. Working with people in a whole spectrum of roles and responsibilities so that a broad-based group of supporters for the training is built. This was exemplified by the trainer at Campus A as she had direct contact with students, teachers, and administrators.

Barriers to Implementation of Training

Throughout the project, at all sites, there were aspects of the school and the intervention that led to difficulties in implementing and integrating the training model and/or the substance of the training into the school. The school personnel, the trainers, and the researchers learned from these barriers and attempted to overcome them whenever possible. Here we summarize the impediments that occurred throughout the project.

A major problem that trainers and researchers acknowledge was that a needs assessment should have been conducted separately for each site before the project began. Preliminary observations and interviews would have shown the idiosyncracies of the campuses that were not revealed to us in our initial talks with the school. With this information, the training could have been customized so that it would not have taken so many changes of strategy before the faculties were comfortable with the scheduling or the methods of training. The training director said in retrospect:

> It would have been better had we spent six months building trust and rapport and accurately learning each site's culture before doing any training. We would have also benefitted from more experience in schools and knowledge of instruments such as the Concerns-Based Adoption Model (CBAM), which helps staff developers in school settings accurately judge the commitment level of the group and choose the activities best suited to each level. We made assumptions about this that were not accurate. We had to learn from our mistakes and modify our methods. Over time, thanks to the skill of our staff developers and some very dedicated teachers, we were able to create a positive cooperative climate.

A school-related constraint to the implementation of training at all of the sites was student absenteeism. The school-wide attendance rate for AHS is about 60%, not taking tardiness into account. This especially affected the cooperative learning sites where students were arranged in on-going cooperative groups. The groups were never stable. A remark made frequently by teachers was, "You can't do cooperative learning groups when you don't know who will appear in class the next day." Absenteeism was confounded by tardiness. Many students came to school late so that classes, especially those early in the day, would begin with a few students and end with many more. This was disruptive to the cooperative groups. As mentioned previously (Chapter V), a partial remedy was implemented at Campus B with the use of the Slavin model, which permits larger groups with more intergroup competition among them than does the Johnson model (Slavin, 1983).

The observations and the survey research were also affected by absenteeism and tardiness. Researchers had to devise strategies to conduct "make up" sessions for students whose questionnaires were missing or incomplete. This increased the amount of time needed for the administration of questionnaires and led to the perception, among the faculty, that the project was more intrusive than had been originally planned. In following the schedules of randomly selected students, the site researchers had to proceed as if absent students were present. This allowed us to generate more systematic documentation of student life, but often it lacked the rich details of interaction that would have been recorded had the student been present.

Another constraint was that the research portion of the project was not as fully accepted as was the training portion. School personnel seemed to tolerate the research only because they wanted the training. When this topic arose in discussions and meetings, staff members told ICCCR staff that they thought they had understood the procedural approach in the beginning, but that as the project unfolded they grew less certain of it. For example, they were surprised at the extent of the data collection. The Principal said:

> The least helpful part of the project was the research. In some ways it was really counter productive in terms of the amount of time it took, the amount of stress and strain it caused. . . . So the impact of the whole research part was that it was non-productive. . . . Even the staff who had trouble with the research part got something out of the training.

The ICCCR staff explained the research design during initial discussions and throughout the project. AHS staff were kept informed about the schedule and procedures for the research and presented with preliminary results as they became available.

A specific problem in their lack of support for the research was the length of the student questionnaire and finding the best methods for administering the correct questionnaires to students who needed to complete them. Often during the data collection, students commented on what they viewed as too much repetition when one type of question was asked in several different forms. The teachers voiced the opinion that part of the academic difficulty these students experienced came from test anxiety. Although the students were told that a questionnaire was not a test, some continued to make the association. This part of the research was time consuming and stressful for the students. It was clear that students and staff understood the direct and immediate benefits they could derive from the training; it was not clear to them how the research would be of value. A coordinator said:

> The questionnaire part could have been done differently. They were lengthy, much time was needed, and students were reluctant to do them. Most strategies we tried to solve this didn't work. The one that worked somewhat was having the teachers motivate them to do them.

One group of students sent a letter to the ICCCR protesting their inclusion in the research. The staff of the ICCCR offered to meet with them, at their convenience, to explain and discuss the research portion of the project. The students who had issued the complaint did not respond. However, during cycle three of year two the situation was alleviated somewhat when the teachers took a more active and supportive role with the researchers in the administration of student questionnaires.

Limited funds was probably the most damaging barrier to the project. This resulted in having to alter the design of the project from our original plan, which was to offer training and conduct research over three full years with additional time for analysis and writing. The amount of time and personnel necessary to effect successful change require more funding than was allocated for the project. When problems arose we reviewed our goals and actions and employed remedies as the funding allowed. We are able to report positive results in spite of the difficulties that were experienced in conducting both the training and research as we had planned.

Implications for Education

While there is value in learning to resolve conflict and work cooperatively for all human beings, the advantage is much greater for people who are likely to have the threat of violence confront them in their daily routines. For students who live in environments where conflict often leads to violence, the training we have implemented -- with its understanding of needs, positions, and win/win perspectives -- could have a positive effect that would lead to the reduction of violence in society as a whole.

For at-risk students with low self-esteem, who are generally over the appropriate age for their grade level, the skills of conflict resolution and cooperative learning can help to generate a more positive school experience. For instance, the antagonism that may result from their large physical size need not lead to conflict if there is a mediation program in place (see the example above where a student tells how students are lured into fights). The same students may become more confident if they can learn in cooperative groups where their contribution is considered valuable and others are concerned about their learning.

At-risk students, many of whom are from minority language and ethnic groups, often need aid in negotiating situations that relate to another cultural context such as the behavior expected in the principal's office or that which wins approval of members of a different social class. Learning how to handle these potentially conflictual situations may help to reduce the frequency with which they get suspended, expelled, or placed into programs to reduce behavior problems.

Although questions have been raised as to whether the techniques of conflict resolution and cooperation belong to and foster the value system of the established, mainstream segment of society, we know that there will be many instances in which at-risk students must function in the mainstream. Although they may be more familiar with another set of values emerging from the harsher conditions which may be characteristic of their own milieu, there is value in knowing what others expect so that they have a choice of behaviors to apply in different situations. Non-minority faculty and staff play a significant role in assisting minority students to learn to negotiate the larger society. They are important representatives of other subcultures that the students will encounter in the world at large (Mitchell,1992).

The issue of cultural difference has a specific implication for training programs; namely, that planners and trainers must have an awareness of the culture of the trainees that will better enable them to adapt the training to the needs of the target population (see above, "supporting factor #2"). Moreover, the training is more effective if the materials and activities help to bridge the majority and minority cultures. This effect is even more pronounced when the trainer and students are of the same ethnic or linguistic group. At

Campus A, for example, the ethnic match between the trainer and the students served to optimize implementation of the training. As the project Training Director observed:

> That was a good match. In some ways [Karen], as an African American, was better able to work with the students than were some of the staff at [Campus A]. She knew conflict resolution and she knew the culture.

Implications for School Restructuring

The movement to restructure American schools is growing at a rapid pace. Two of the movement's basic components are the creation of smaller instructional groupings within the institution -- often called minischools -- and implementing a form of school-based management. Both of these forms represent a decentralization of school operations. They create new ways of working that place individuals together in relationships that are different than they were previously. Both are intended to create a new school culture that is based on teamwork. People in different roles and on different status levels must work together in ways they have not worked before. These basic changes in the social configuration of schools require more cooperation and collaborative work and thus are directly related to the skills of conflict resolution and cooperative learning.

"Schools-within-schools" are characterized by a team approach to instruction in which teachers of different subject areas share the same groups of students. These teachers meet as a group to plan curriculum and discuss the progress of individual students or groups within their unit (often called "houses" or "charters"). Such meetings have replaced the traditional departmental meeting. The interdisciplinary team creates a more holistic approach to student progress where most or all of the teachers know how much progress, if any, that students are making in all areas of study.

Such team approaches require faculty members to develop working relationships with colleagues with whom they have had little interaction previously. Developing these relationships requires the teachers to use some of the primary components of conflict resolution such as active listening, paraphrasing, assessing positions and needs, and distinguishing the negotiable from the non-negotiable. By learning these various components of conflict resolution, the staff would develop the skills to work through their differences and make tough, critical decisions in spite of external pressure and politics. Also, they would learn to manage despite the inevitable frictions among different personalities.

Another aspect of the efforts to decentralize the management of schools is the empowerment model, which recognizes the rights of students, parents, teachers, administrators, and other school staff members to participate together in the management of the school. It is a model in which people from these diverse groups, who often have prescribed or conflictual relationships, become members of teams that make the crucial decisions about school functioning. These teams must show they can be professional and accountable enough so that significant decision-making power can be wrested from more traditional groups and individuals at the district and state levels.

The teams need high levels of skill in collaboration and constructive conflict resolution if they are to be successful in working together to improve their school. Members must be able to take responsibility for empowering and supporting one another in collective expectations of high level performance. They need to know how to trouble-shoot and problem-solve in a variety of contexts within the constraints of a scarcity of time and resources. Each team member must feel so valued that there will be a willingness on his or her part to sustain the hard personal effort necessary to bring about a fundamental improvement in the school's functioning and achievement.

Training of these teams could contribute well to the realization of success. The focus for such training would be the social skills, team-building, and group decision-making skills which are emphasized in cooperative learning and conflict resolution training.

Implications for Vocational Education

Programs that prepare young people for adulthood inevitably must address the much debated question: What cadre of skills do the students need in order to secure desirable employment or begin a career? Since the economy is not static, education and training programs must accomplish the preparation of workers while adapting to profound changes that are taking place in the labor market. Also, they must be cognizant of the economic projections that forecast what skills will be needed in future decades as present-day students mature in their careers.

We know that the demands of contemporary worksites are great in terms of the variety of skills needed. These include not only basic academic skills and the technical skills needed for tasks on the job, but also higher order thinking skills, adaptive learning skills, and social skills. This cadre of skills is needed by all students regardless of their post-high school plans (de Lone, 1985; Resnick, 1987). The transferability of these skills from school to work is enhanced when the skills are taught, demonstrated, and employed in an educational program that allows them to be practiced as they are learned (Mitchell, Russell & Benson, 1990).

The training programs in cooperative learning and conflict resolution fit these characteristics in a number of ways. First, teaching the social skills that allow people to work with others in a noncompetitive manner is an essential part of cooperative learning. Practicing these skills in training sessions and teaching students to use them helped to foster a collaborative mode which began to permeate other activities, such as staff meetings, at Alternative High School.

Secondly, cooperative learning training emphasizes that group members should achieve individually, yet develop a sense of responsibility for the achievement of others. This is invaluable learning for the workplace in that it teaches people to work successfully at individual tasks as well as those requiring teamwork. Observations in our training sessions showed that individuals felt proud at the completion of a group project, but they were also able to criticize constructively, without hurting the feelings of others, when the group had not functioned well.

Conflict resolution training promotes the kinds of effective communication and interactions that ensure a calm work environment. Some of its applications to the workplace, such as having workers use the skills to settle disputes, are obvious. But others are more subtle. For instance, since members of minority groups constitute a proportion of the unemployed and underemployed which is considerably larger than their proportion in the population (Braddock & McPartland, 1987), there is reason to believe that socio-cultural factors are operating in the workplace such that the behavioral expectations of employers are incongruent with those of minority employees. This may be a cause of the conflict that results in the termination, lack of hiring, or lack of promotion of minority employees (Fordham & Ogbu, 1986).

It has been demonstrated that the communication skills students learned in conflict resolution training allowed them to state their positions clearly and assess the needs and positions of others, including adversaries. These skills, when used in workplace settings such as job interviews and job evaluations, may be the link that joins employers and minority employees in less adversarial postures. The communication and perspective-taking skills of conflict resolution could be helpful in creating a more productive work environment within the modern workplace in which a variety of ethnicities and a mix of genders are present.

The skills of both conflict resolution and cooperative learning are needed by those who will soon enter the workplace as well as by those who are already in it as workers and supervisors. The successful vocational school and other programs that train youth for work are prime locales for the type of training conducted by this project.

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